

data

IV. 1960

52



DOING BUSINESS WITHIN THE U.S. MUTUAL SECURITY PROGRAM

data

GOVT. R&D DATA

M-52

Akron 4 Ohio

11/60

302 East Buchtel Avenue

Bierce Library

UNIVERSITY OF AKRON

PA754

7A1060

THE UNIVERSITY OF AKRON
LIBRARY
AKRON 4, OHIO

Emerson

*has developed and is
currently producing . . .*

*an equipment
which is part
of the
guidance and
control system*



of the
U.S.A.F.'s
"HOUND DOG" MISSILE

*. . . under contract
to the Autonetics Division
of North American Aviation*



EMERSON RADIO & PHONOGRAPH CORPORATION
GOVERNMENT ELECTRONICS DIVISION
14th and Coles Streets, Jersey City 2, New Jersey

EMERSON RESEARCH LABORATORIES
1140 East-West Highway, Silver Spring, Md.
(Metropolitan Washington, D.C.)

DATA MAGAZINE **November 1960**

©Queensmith Associates, Inc.
Vol. 5, No. 11 of DATA Magazine

*Published monthly by
QUEENSMITH ASSOCIATES, INC.
All rights reserved*

*Publisher & Editor-in-Chief:
MURRAY QUEEN-SMITH*

*Managing Editor:
WALTER SEAGER*

*Feature Editorials:
MARTIN CAIDIN*

*Feature Writers:
HAROLD HELFER, PAT THOMAS,
PETER HACKES*

NOVEMBER 1960 COVER

"Let there be light."—When electricity was recently brought with ICA financing to Tunisia's Island of Djerba, the young village scholar had his first chance to read by electric light.

SUBSCRIPTION RATES

Subscriptions are available to both Government and Industry personnel. U.S.—\$12.00 for 1 year; \$22.00 for 2 years. Foreign—add \$3 per year for postage.

Government Users of Federal Supply Schedule
DATA is available to active duty Government personnel at a 10% discount via the Federal Supply Schedule. Send requisitions direct to DATA Publications specifying FSS Stock Requisition Number 7630-576, Index No. 3011, FSS Section 76, Part II.

Checks for subscriptions should be made payable to Queensmith Associates, Inc.

ADVERTISING REPRESENTATION

East Coast: Eugene L. Pollock, 60 East 42nd Street, New York, New York (Tel.: YUkon 6-9280)

Midwest: Charles Stearns, Jr., 35 East Wacker Drive, Chicago, Illinois (Tel.: Andover 3-2240)

West Coast: Daniel R. Zubernick, 10401 Encino Avenue, Granada Hills, California (Tel.: EMpire 3-9770)

DATA is listed in Section 7 of SRDS

MAILING PRIVILEGES

DATA is mailed monthly under Second Class privileges authorized at Washington, D. C.

**SECOND CLASS POSTAGE PAID AT
WASHINGTON, D. C.**

TITLES AND TRADEMARKS

The names *DATA magazine*, *DATA-GRAM newsletter*, and *DATAGRAF charts* have been trademarked by Queensmith Associates, Inc. and are duly registered at the United States Patent Office.

DATA PUBLICATIONS

**1831 Jefferson Pl., N. W.
Washington 6, D. C.
Tel.: Federal 3-8111**

data

publications

Dupont Circle Building
Washington 6, D. C.

DATAGRAM

THE UNIVERSITY OF AKRON
LIBRARY

AKRON 4, OHIO

15 August 1960

DATA TO FEATURE WEST GERMAN DEFENSE IN MAY 1961 ISSUE

Arrangements have been completed with the Embassy of the Federal Republic of Germany to feature the German-American Defense Partnership in the May 1961 issue of DATA magazine. In his letter to DATA publisher Murray Queen-Smith, the Press Secretary of the German Embassy, Mr. Robert Borchardt, said: "There will be constructive cooperation from our side. The Embassy's Press Office and the Press Section of the Federal Ministry of Defense in Bonn will make available any kind of information needed to make this issue of DATA a full success."

TRADE-A-CARD AD RATES CUT, DISPLAY RATES UP IN NEW AD CARD

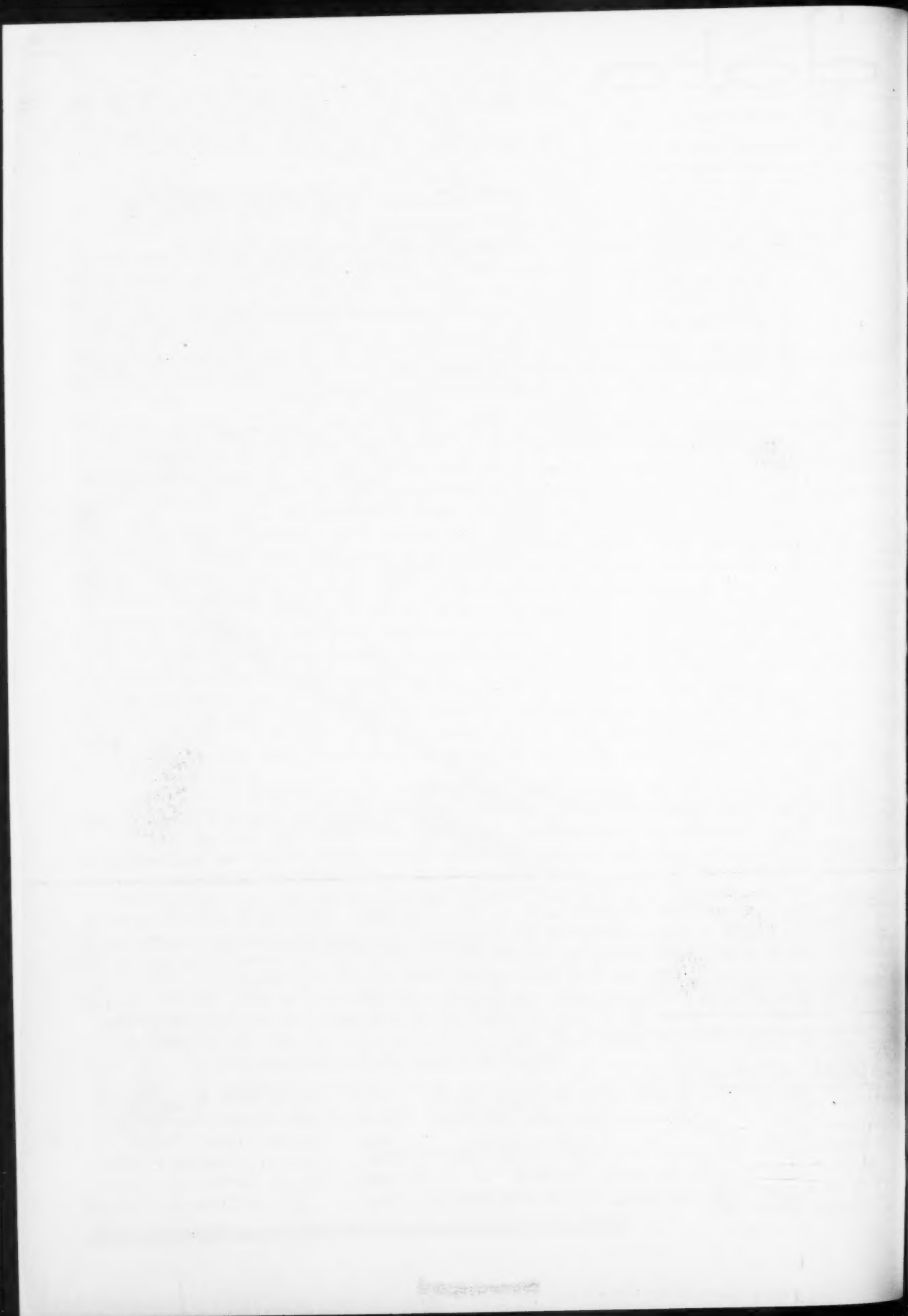
DATA magazine's new advertising rate card, Rate Card #6, will go into effect on 1 September 1960. The new card reflects the continued growth in circulation of our monthly publication with advertising display rates increasing from \$320 to \$350 per page. Two-thirds page areas are \$310. One-half page areas are \$225. One-third: \$180. One-quarter: \$130. And one-sixth: \$110. Rates quoted above are on a one-time basis. Discount for three-time orders is 5%, for six-time: 10%, for 12-time: 15%. Color charges are \$110 per color extra and a 15% additional charge is made for "bleed" artwork. TRADE-A-CARD, DATA's unique "business comes calling" feature in which subscribers may have their actual calling card printed in the magazine on card stock in two-colors with additional information about their company or services on the back of their card along with easy tear-out perforation around the card has been cut in price. Effective 1 September TRADE-A-CARD rates will be \$50 for one-time insertions, \$45 on six-time, \$40 per insertion on 12-time contract. Typesetting charges for back of card messages additional.

SPECIAL BUREAU OF NAVAL WEAPONS INTERIM REPORT OFFERED

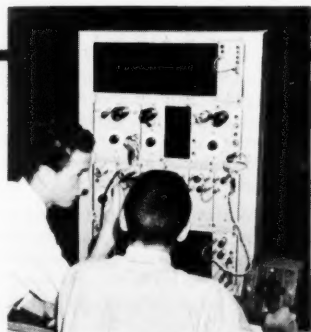
Since our special issue on the Bureau of Naval Weapons in February 1960, many significant changes have occurred and Data Publications has collected a sizeable amount of salient information which we feel many of our Defense-Industry subscribers would want made available to them now rather than have to wait until next February when our next scheduled BuWeps edition of DATA will be promulgated. Therefore we are making available to those subscribers who want it a special Interim Report on the Bureau of Naval Weapons (IRBW-14A). Material has been prepared in IBM typewriter (same as this newsletter) with charts and diagrams. Price of this special Interim Report on BuWeps (IRBW-14A) is \$10. Only a limited supply of copies have been printed so we ask those of you who want this special BuWeps book to get your orders in now. Order IRBW-14A.

DATA 1961 SCHEDULE

Jan.	Air Research & Dvlpmnt Cmd	July	Navy ASW Program
Feb.	Combination BuWeps, BuShips	Aug.	Air Force Electronics
Mar.	Natl. Aero. & Space Admin.	Sep.	Army Signal Corps
Apr.	Federal Aviation Agency (FAA)	Oct.	Army Transportation
May	West German Defense	Nov.	Army Ordnance Corps
June	Air Materiel Command (AMC)	Dec.	Dept. of Defense Annual



Philco Training Plan helps nations achieve technological growth from within



STUDENTS LEARN BY DOING

Students build complete and functioning systems with lab chassis that correspond to the "building block" circuit panels that instructor uses on the classroom demonstrator.

Short term training programs fall short in meeting the needs of long term growth, *unless* these programs are self-perpetuating. Self-perpetuation is one of the vital elements of Philco Electronics Training Programs for less-developed nations.

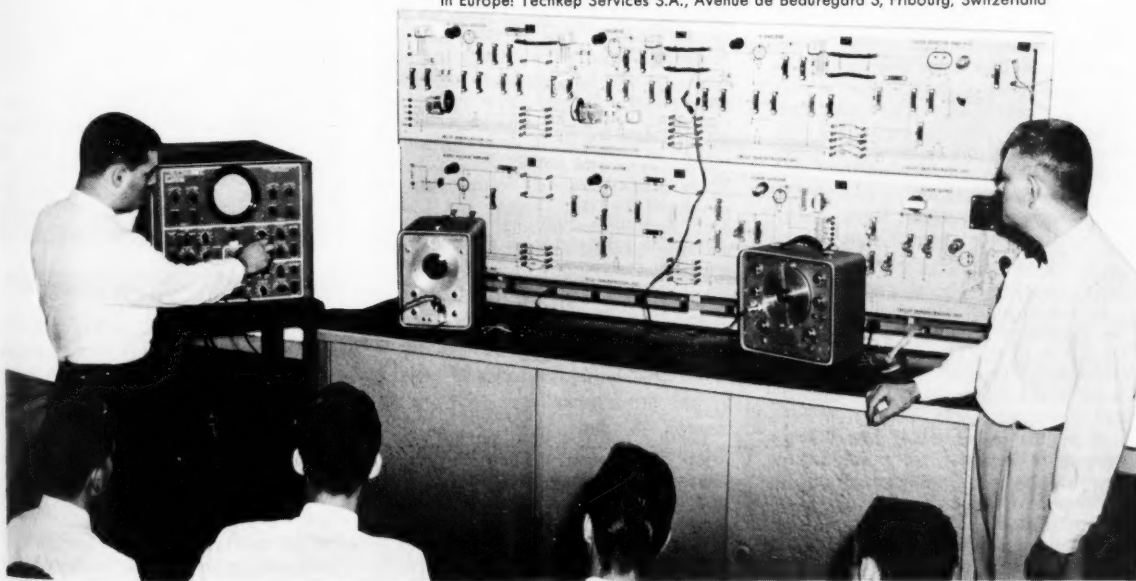
These programs can be set up and started in a minimum of time . . . for any or all fields of electronics . . . at any or all educational levels. They include all training equipment . . . all training materials in any language . . . and experienced instructors to train local instructors, who in turn will be capable of training more instructors as the needs demand. Through these Philco Training Programs a nation achieves the capability to train technicians and engineers who will contribute in advancing and sustaining a growing technology. For information, write to:

Philco TechRep Division

P. O. Box 4730, Phila. 34, Pa.

In Canada: Philco Corporation of Canada, Ltd., Don Mills Road
Don Mills, Toronto, Ontario, Canada

In Europe: TechRep Services S.A., Avenue de Beauregard 3, Fribourg, Switzerland



Instructor builds operating systems on Classroom Demonstrator a step at a time with easy-to-learn "building block" circuit panels.

PHILCO®



Famous for Quality the World Over

NOVEMBER 1960

data

Volume 5

© Queensmith Associates, Inc., November 1960

Number 11

Published monthly by QUEENSMITH ASSOCIATES, INC., all reserved. Publisher and Editor-in-Chief: MURRAY SMITH

CONTENTS

	Page Number
Contents and Feedback.....	4
Focus by Peter Hackes.....	5
Feature Editorial by Martin Caidin.....	6
Mutual Security Program Section.....	7
Defense Marketing Forum by Pat Thomas.....	21
DATALOG of missile, space, detection projects.....	25
Dealing with Government People.....	30
DATAGRAM newsletter.....	31
Company Needs & Contacts.....	34

ADVERTISERS

	Page Number
Emerson Radio.....	C-2
Admiral.....	C-3
DuMont.....	C-4
Philco.....	3
Sheffield Publishing Co.....	20
Studebaker.....	24

DATA PUBLICATIONS

1831 Jefferson Place, N.W.

Washington 6, D. C.

Tel.: FEderal 3-8111

SECOND CLASS POSTAGE PAID AT WASHINGTON, D. C.

FEEDBACK DATA

Defense Marketing Forum

SIRS:

I enjoyed Pat Thomas' article "Building Realism into Sales Forecasting" in the August issue of DATA and like very much his realistic approach to sales forecasting in the defense marketing area. More articles of this nature will be greatly appreciated.

D. E. Zesiger
Assistant Manager, Sales
Goodyear Aircraft Corp.
Litchfield Park, Arizona

SIRS:

It is with great interest that we note the orientation of your *Defense Marketing Forum* by Pat Thomas for it is rapidly becoming apparent that the long expected shake-out in the Avionics Industry has gotten underway.

In his September article Mr. Thomas stresses the necessity for a supplier in this field to look at himself from his customer's viewpoint. All of us know of instances of companies which have started their growth on the basis of an engineering idea or a new material or process. These successes were entirely proper and necessary during the development stage of the U. S. missile program.

However, now as the conversion from aircraft to missiles has passed the mid-

way point, and the number of going programs is decreasing, it would appear that survival and continued growth for a program supplier will depend upon his continuous quality items on time and at a reasonable price. The shift in emphasis from creative technology to marketing competence will then be complete and companies which are unwilling or unable to effect this change in viewpoint will be the first to feel the impact of the squeeze. These points were well brought out and developed by Mr. Thomas and I shall look forward to reading more of his excellent business analysis in your future issues of DATA.

J. R. Conway
Director of Marketing
Whittaker Gyro Div. of
Telecomputing
Van Nuys, California

SIRS:

Let me tell you how much I've enjoyed Pat Thomas' series of articles in *Defense Marketing Forum*. His is the first kind of applicable defense marketing reading I have found.

I would like to invite Mr. Thomas to speak at one of the regular chapter meetings of the Cincinnati Chapter of the American Marketing Association. Each year, the Chapter features a speaker from the industrial marketing field. Obtaining this speaker is the responsi-

A brief message from the publisher:

The editorial mission of DATA magazine is to provide Government R&D functional reference information for higher echelon executives who have a minimum of reading time.

To accomplish our editorial mission we currently maintain an editorial format composed of six main sections: (1) R&D perception and interpretation through our monthly editorials, (2) a complete treatise on a different Government activity each month, (3) a Defense Marketing Forum, (4) a monthly "what's new" DATALOG of all missile, space and detection projects arranged alphabetically, (5) a fast-reading DATAGRAM newsletter of innovations anywhere within the Government R&D spectrum, and (6) a Needs and Contacts section in which we give subscribers the free right to air their needs within our readership family.

We serve as an on-the-job tool for busy people who want information of use in their work systematically arranged for speedy location. We attempt to provide such functional information in suitable format.

We take our responsibilities seriously and attempt to serve our readership group with the utmost integrity.

—Murray Smith

bility of the Chairman of the Industrial Marketing Committee (me) and I would consider it a real coup, were Mr. Pat Thomas, writer of the *Defense Marketing Forum* section of your magazine, agree to address our group.

S. J. Martin, Chairman
Industrial Marketing Committee
American Marketing Association
Cincinnati, Ohio

Ed.—Pat says he would be happy to speak before your group and will write you in advance of the next time he will be in the Cincinnati area.

AF Electronics Program issue

SIRS:

We will be delighted to help prepare the section of the August DATA featuring the Air Force Electronic Program. The man you will be working with is John T. O'Brien, Chief of the Public Information Division of AFCCDD-CCEP, Hanscom Field, Bedford, Mass. We feel that this issue of DATA will give us an excellent opportunity for us to get our story before industry, and we are looking forward to working with a representative of DATA.

John D. Nottingham
Colonel, USAF
Director of Information
AFCCDD Bedford, Mass.

focus

The world's first space flight center takes shape.

About 12 miles northeast of the Washington Monument, in what was once a stand of timber next door to the Agriculture Department's Beltsville, Maryland experimental station, an army of bulldozers is hub-cap deep in mud and rocks, putting together what eventually will become a control center for manned flights into outer space.

It's to be called the Goddard Space Flight Center—in honor of space pioneer Dr. Robert Goddard, who before 1920 tried to sell the U. S. military on a flight to the moon. As of today, two buildings of the 8 which are planned for this 550-acre tract have been completed. In all, the complex will cost 27½-million dollars, and will house some of the most important, delicate, and complicated equipment in the world. From Goddard, U. S. scientists will be in contact with all orbiting U. S. satellites, manned and unmanned (and will track Russia's too), and later will keep track of space ships as they make their way to the outer reaches.

Already the new center has to its credit the planning for the *Echo* balloon satellite, and is working on such forthcoming space shots as the *Atlas-Able* payload to be placed in a lunar orbit, and the advanced *Tiros* weather satellite—both of these to be fired before the end of this year. After that, of course, the Goddard men will get into such things as orbiting manned space stations, space observatories, moon-landing vehicles, ships out to Mars and Venus and beyond. And all U. S. space vehicles will "check in" at Goddard while in flight—one of the buildings will house a tracking center.

Besides the concentration of computers, data processors, and other electronic equipment, Goddard will have a nook reserved for space-age historians to record the history of man's progress into space as it develops. And one desk will help to handle the blizzard of inquiries which blows in from all parts of the country—everything from an occasional volunteer to go along on an outer space venture, to a man who wants to carve up the moon and sell building lots to the highest bidders.

One such letter really bears repeating: It was from a man who wrote that he's been in the aviation business for a long time and wanted to offer NASA his system for launching satellites—from an underground vacuum chamber. "I want to give NASA the first opportunity to use this," he wrote, "because I don't trust them Air Force fellas . . . not since they stole the Norden bombsight I developed for them in World War II, and never paid me for it. And I'm still trying to collect," said he, "from those Wright Brothers for an automatic pilot I designed for them, and which the Wrights are still using."

Eventually 2000 technicians will work in Goddard's 8 buildings, which sport such Buck Rogers-ish titles as "Central Space Flight Control," "Space Sciences Laboratory," "Satellite Systems Laboratory" and "Manned Satellites Division." As the buildings go up and the instrumentation is installed—as man's astronomical future becomes unlimited, the Goddard pioneers are plagued by a most mundane problem: "Don't let the Russians know about this," one man whispered to me, "we're so far out—on the ground that is—that there's no public transportation here. Getting to Mars or Venus we've got pretty well doped out, but getting to work at this place is pretty tough," said this future space-flight controller. "These car pools are murder!" ■

By PETER HACKES/DATA

Mr. Hackes' space-age comments are heard regularly on the NBC Radio series "Emphasis".



Peter Hackes, NBC News Washington correspondent reports on NBC Radio each weekday at 7 A.M. Eastern time, and conducts the NBC World News Roundup each weekday morning. He has been covering the Washington scene for more than eight years, and is assigned to the military-science areas. He has appeared on *Meet the Press*, *Today*, and several other NBC television and radio programs.

Modern-Day Aesops Fables

The Public Papers of the Presidents for the years 1957 and 1958 are interesting documents which may be purchased from the Government Printing Office. Your writer spent a fascinating evening reading through these weighty tomes, and believed that DATA readers might find of interest several of the comments and material excerpted therefrom. My comments are italicized.

* * *

At the President's news conference of October 9, 1957, in response to a question by Robert E. Clark of INS as to whether or not we were in a race with the USSR in space, the answer in part, explaining Russian progress, was given as:

"From 1945, when the Russians captured all of the German scientists in Peenemunde . . ."

Now this is really interesting. I just never realized that people like Wernher von Braun, Kraft Enricke, Dornberger, Stuhlinger, Debus, and the rest of the German scientists brought to this country immediately after WW II under OPERATION PAPERCLIP actually might be Italians disguised as Germans.

* * *

From a radio and television address of November 7, 1957:

"The Navy has in both oceans, submarines which can rise to the surface and launch, in a matter of minutes, a missile carrying a nuclear warhead, and submerge immediately—while the missile is guided to a target hundreds of miles away."

This intrigues me. In 1957, submarines (plural) in both oceans (plural)? And going beyond this, what kind of missile? The obsolete Regulus I, the value of which may be compared by noting the abandoning of the supersonic Regulus II? Question: Just how many submarines and how many missiles (in respect to combat, operational capability) in numbers do you think there were in 1957?

From the same radio and television address of November 7, 1957:

" . . . The B-52 will, in turn, be succeeded by the B-58, a supersonic bomber."

The B-58 will replace what? And all the time everybody in the Air Force believed that the B-58 was replacing the B-47. You just never know . . .

* * *

From a radio and television address of November 7, 1958, apparently in reference to Project Farside:

"We have fired three rockets to heights between 2000 and 4000 miles, and have received back much valuable information about outer space."

Perhaps this statement should have been retitled "How To Stretch A Point." There were six Farside firing attempts, all rockets to be ignited as they hung beneath a balloon. Let's see what happened in 1957.

No. 1 simply settled into the Pacific. No. 2's instrument head broke off the rocket, transmitted for 370 miles—and that was the official story. No. 3 never transmitted, so on one knows anything about it. No. 4 was never fired. No. 5 transmitted exactly 4/10ths of a second—no other information. No. 6 fired well, the radios transmitted for 8 minutes, and went dead. After analyzing the signals, the scientists concluded the payload went to 2500 miles, possibly to 4000 miles. The payload? A 10-pound package, that transmitted for 8 minutes. Isn't it wonderful how science can transform the foregoing into "three rockets to heights between 2000 and 4000 miles, and have received back much valuable information about outer space."?"

* * *

From a radio and television address of October 20, 1958:

"Here are some incontestable facts. For eight years after World War II, there was inadequate emphasis on the development of long-range ballistic missiles. In fact, in no single year was more than a million dollars actually spent for this purpose until this Administration took office . . ."

Interesting. In 1953, the first year of a then new Administration, approximately one million dollars was spent on long-range ballistic missiles.

But this becomes more interesting as we go on. In a process designed to illustrate the Administration's emphasis on the ballistic missile, the President stated, on October 21, 1958:

"After the war—1945—was over, there was a good deal of interest in missiles in our government, but there was no interest in long-range ballistic missiles . . . Now this program was completely ignored during the prior administration."

Later in the same address, the President again emphasized his point by stating:

" . . . the whole problem of the intermediate and long-range ballistic missile was completely ignored."

This constitutes a remarkable statement. No one person more than Karel Bossart, and his team, who worked on the MX-774 ballistic missile test vehicle in 1946, 1947, and 1948, would find it interesting. Especially since the MX-774, of which three were fired in 1948, was the initial test vehicle in an ICBM program. But outside comment is not necessary. Turn back the clock one year, and read what the President himself had to say on October 9, 1957:

"We have a history of going back for quite a ways in modest research in the intercontinental ballistic missile, but until there were very great developments in the atomic bomb, it did not look profitable and economical to pursue that course very much, and our people did not go into it very earnestly until somewhere along about 1953, I think."

So yer pays yer money, and yer takes yer choice!

— MARTIN CALDIN

MUTUAL SECURITY PROGRAM



The purpose of the Mutual Security Program is the furtherance of the foreign policy objectives of the United States by increasing the military and economic strength of our friends and allies. The program is an instrument to promote the national security. It is designed to combat and counteract the military, political, and economic offensive waged against the free world by international communism, and, by aiding the drive to raise the living standards of the peoples of Asia, Africa and Latin America, to assist in the creation of a healthy community of nations within which we can hope to live in peace and prosperity.

—Dwight D. Eisenhower

ICA FUNDING MUTUAL SECURITY PROGRAM

	FY 1960 Appropriation (Millions)	FY 1961 Appropriation (Millions)
Military Assistance	\$1,300	\$1,800
Defense Support	695	675
Technical Cooperation	181	150
Special Assistance	245	231
Contingency Fund	155	250
Other Programs	100	125
Development Loan Fund	550	550
TOTAL.....	\$3,226	\$3,781



THE SAGA OF SHERIFF SAM

Feature Story on the U. S.
Mutual Security Program

THE Mutual Security Program is a globe-girdling affair, one of vast international ramifications and complexities that is influencing the course of history, but it can be explained in terms that a six-year-old TV fan can understand.

You see, it's like this, podner.

U. S. Wears the Star

There's this sheriff, Uncle Sam, and he's a real honest and kind of simple fellow. He isn't out for anything for himself. All he wants is to keep things nice and peaceable, to have law and order, so folk's can go about their business without getting pushed around and intimidated.

Well, Sheriff Sam is a brave fellow, he's proved it time and time again, and he's been in some real shooting showdowns, no question about it, but he's got a real problem. This place he's sheriff of is a big place, whole doggone cotton-pickin' cowpatch of a world, no less.

Wearing a tin star is not always the most popular thing, but somebody's got to do it. The job used to fall to a fellow named John Bull but not even Wyatt Earp could last forever and somebody now has to come along and take over. There's a young justice of the peace around now by the Chinese name of Yew

En but he's still like a freshborn colt, awful wobbly in the legs . . . there'd be rustlers, gonnifs and gunslingers, like a certain notorious character known as as Alkali K. or Bearhug Krush, who'd be getting plumb out of hand.

Anyway, trueblue and brave as is this sheriff he knows he can't keep on top of things just by himself. That's no disrespect to him. Even The Lone Ranger, you know, has his Tonto, not to mention Silver.

So what Sheriff Sam has been doing is handing out some shootin' iron equipment to some 40 peaceable, law-abiding fellows to lend him a hand. Being as this is a kind of up-to-date, adult-type western all this has a fancy name — *Military Assistance Program*.

Explanation of MAP

Of course, MAP is really a posse. But there are some particular problems that this particular posses has.

Some of the members just haven't been up to snuff. All out of condition. A few have actually been ailin' mighty bad. Their hearts are in the right place, but the rest of their anatomy has been undergoing a

by HAROLD HELFER/DATA

shellackin'. Well, as everybody knows, just being willing to take on the bad guy on main street at sunset isn't quite enough. You've got to be in reasonably good shape. These bad guy varmints play for keeps and they'll take every advantage they can of you, too.

Defense Support

So Sheriff Sam has to try to build up this posse of his so's it'll be in fightin' fettle to handle things if the going gets rough. To get kind of adult and fancy about it, they're given what is known as *Defense Support*, or "economic help." To be exact and specific about it, receiving this extra help are 12 nice-type-hombres going by the names of Korea, Formosa, Philippines, Vietnam, Laos, Cambodia, Thailand, Pakistan, Iran, Greece, Turkey and Spain.

Development Loan Fund

Sheriff Sam also has something else going for him. This really has a fancy handle . . . *Development Loan Fund*. That's for some of his posse that may not be in an out-and-out desperate condition but, still, don't have none the best of things going their way either. So those in this category get a "loan" to help them get on their economic feet. Being a loan, this means they're supposed to pay this back but, as you would figure, Sheriff Sam is lenient and understanding about his terms and the whole thing.

Technical Cooperation Program

Then Sheriff Sam also has what is known as a Technical Cooperation program. That's to train these posse fellows so's they'll know how to handle the equipment they get. It'd be right foolish to send them something, no matter how impressive-looking and classy this something might be if they didn't know how to operate it — savvy?

Special Assistance Fund

And there's also something called the *Special Assistance Fund*. That's to help somebody who really has a special problem, like a bad farm erosion situation or a rambunctuous

river in the backyard or a plague-like condition.

President's Contingency Fund

And still this isn't all. There's also this *President's Contingency Fund*. If there should be a sudden big emergency, you know, like a crushing tornado or a mighty horde of locusts going on a binge, then The Great White Father, this fellow that runs things in the county seat of Washington, D. C., can send things to help out.

The Mutual Security Program in Total

Now all of this, all added up, is what's known as the Mutual Security Program. And, podners, it's not exactly hay. Or popcorn.

The Military Assistance part comes to \$800,000,000 a year. Defense Support, \$675,000,000. The Development Loan Fund, \$550,000,000. Technical Cooperation, \$150,000. Special Assistance Fund, \$230,000,000. President's Contingency Fund, \$250,000,000.

So you can see there's a lot of gold in them thar hills for somebody. And there are quite a few prospectors that can get in on this. Gunslingin' equipment and "economic support" cover quite a passel of things these days, from muskets to missiles and from bridge spans to a fancy potent known as DDT.

The hardcash-type wampum for all these things stems from two main sources, Department of Defense, which handles things in the guntotin' line and the ICA, a short handle for International Cooperation Administration, which takes care of the things that're more general in nature.

Procurement

Now the Department of Defense procures shootin' iron stuff it needs for this program like it gets the rest of its hardware, and the latter-day Samuel Colts that it gets this from, gets paid off in the hard coin of the realm, real bona-fide U. S. A. greenbacks. And the ICA is around to see that those dealing with these posse outposts in other type commodities, whether its fertilizers or

fans, tractors or trains, get treated likewise and accordingly.

So if somebody from these here parts sells Korea \$10,000,000 worth of machinery this local U. S. A. fellow gets the \$10,000,000 in honest-to-goodness U. S. A. folding money, good at any trading post anywhere, while the ICA worries about the native kwan currency involved in the transaction.

So as you can see the treasure in them thar Mutual Security hills is not fool's gold but the real Wells Fargo stuff. What is more, it looks like it is going to be a long, long time before this lode vein peters out.

Take Korea, for instance. It'll probably come as quite a surprise to some but this little country, in strained straits as its economy is in general, because of its particular niche in the general international scheme of things, maintains an army of 18 divisions, the fourth largest in the world, next only to U. S., Russia and Red China. And Korea would be hard put to maintain a local police force without American aid!

Pros and Cons

Now there are some who are critical of Sheriff Sam for handing out what he does to his posse, but when the alkali dust of these outbursts settles, the facts of life still remains that the sheriff needs his posse and he'd be a mighty poor Wyatt Earp and be playing right into the hands of the smirky up-to-no-good characters if he didn't consciously and actively look out after the welfare of his men.

This is true even if it means some day having to cut down on the butter going into the popcorn or the icing on the lobby candy bars. Because, what with some ruthless and unscrupulous hombres being pretty footloose and on the rampage, maintaining law and order both west and east of the Pecos is a tough job. Sheriff Sam probably will make it all right, if you have any faith at all in the virtue-wins-in-the-end scripts, but there's likely to be quite a few cliffhanger scenes along the way and he's going to need all the help . . . and sympathy . . . he can get ■

The Office of Contracts sounds pretty prosaic but it's a real heartbeat and a significant pulse of the Mutual Security Program.

It stands for new roads, new buildings, sanitation and natural resource development, among other things, in the nations of the Free World we are trying to help.

And it stands for \$200,000,000 a year for our business and professional men.

IT WORKS LIKE THIS

Let us say that it is felt that a new dam is needed in Iran. First, the government of Iran would consult with our ICA mission in Iran on this matter. The decision, we'll say, is made that the dam is theoretically desirable and the money available.

The Office of Contracts then hires an engineering firm to go further into the practicability and feasibility of the matter. If the survey re-

sults in a positive finding, then professional and technical detail are given . . . where the dam ought to be located, what its dimensions ought to be, what its construction characteristics should be, etc.

The Office of Contracts then asks for bids from companies who might like to build this dam along these specifications.

Some firm is then awarded a contract that could amount to many millions of dollars.

COMPANIES PARTICIPATING

Big companies and small companies are participating in this phase of the Mutual Security Program.

For instance, RCA is building a transmission station in Ethiopia.

Utah Construction & Mining Co. has a coal mining development program underway in Korea.

Standard Vacuum Oil Co. is doing some exploratory work in Laos.

Pan American World Airways

has a \$3,500,000 plus contract to assist Pakistan with its transportation problems.

And so forth.

If you have a business operation that you feel could fit in with this overseas program of building and development, then the thing to do is let the Office of Contracts know about it.

BIDDING PROCEDURES

This office does not go in for wide open bidding. It keeps a selective list of companies and concerns that it feels can do certain jobs well in certain fields.

But these lists are always being extended and there's no reason, if your firm is eligible, why you can't get yourself included.

Your company will get a pretty good going-over by the Office of Contracts, who wants to feel sure in its own mind just what your capability is, and, if it is felt your company can contribute to the overseas program, then you will be notified of the new projects that are of a type on which your concern might want to bid.

WHERE TO GO

If Washington is not too far out of your way, you might drop in on the Office of Contracts, which is located at 401 32nd St., N.W., Room 504. You'll find Ed Kunze, who heads the office, rather brisk but to the point, a businessman's businessman. He doesn't like people dropping in on him who are just making routine "buttering-up" calls, but if you are genuinely seeking information or seeking to make a proper contact you'll find yourself welcome there.

You don't however, have to come down to Washington to make this contact with the Office of Contracts and to get on its list of bidders. You can write to the Office of Industrial Resources, 401 23rd St., N.W., Washington 25, D. C., and you'll be provided with an application form which, when you have returned it, will lead to your concern being considered as a bidder for overseas projects.



No matter how many publications you may subscribe to . . . *The Saturday Evening Post*, *Time*, *Nation's Business*, *Fortune*, *Data*, *N. Y. Times*, *Wall Street Journal*, etc . . . you ought to take the *Small Business Circular*.

True, that doesn't sound like much. And, actually, it doesn't look like much. Its typography is quite often not up to snuff and it often has the look of something just hastily thrown together.

But you've got nothing to lose. It's absolutely free.

DON'T And, if you've got any idea at all of getting into the exporting business, or if you're already in it but would like to do a little expanding, the *Small Business Circular* **BE** could mean thousands of dollars for you . . . even millions.

It's like this:

A It's the law that for any foreign country to be able to take advantage of any U. S. Government funds under the ICA program it must notify the ICA of specific proposed purchases at least 30 days before contract bids are accepted.

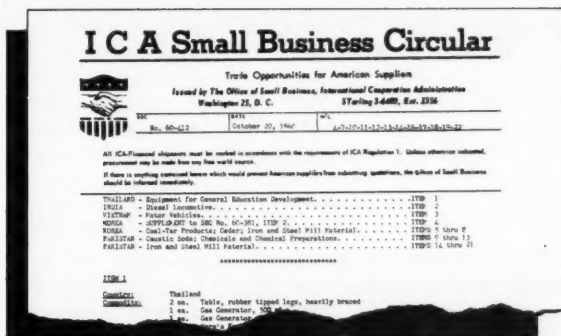
SQUARE — This is true whether it is a private firm of this foreign country or the official government of this country that is behind the purchase.

Bid Info Sent Out Quickly

GET As soon as the ICA is informed of this purchase intent from some country it promptly gets the information out to the prospective bidders of the U. S. A.

THE It does so in post haste fashion. As a general rule, the specifications of the desired commodities are simply snipped out of the official requests from these countries and these **CIRCULAR** specifications are then pasted up on a *Small Business Circular* dummy form for photographic reproduction.

This may not always make for an esthetically-finished product, pamphlet-wise, but it does insure two things: accuracy and promptness.



The ICA Small Business Office, which puts out these circulars, may very well be the most slap-happy bulletin-getting-out agency in this land.

Not only are there few days when it doesn't get out one of these several-page bulletin pamphlets, listing the latest overseas bidding opportunities for U. S. A. businessmen and manufacturers, but it is not at all unusual for two or three of these bulletins to go out in a single day.

All of which insures would-be bidders as a general rule (once in a while "emergency" exceptions are made) at least a 30-day period in which to go about putting in a bid on something.

Circular Has Wide Interest Group

Incidentally, don't let the *Small Business* part of the nomenclature here mislead you. The bidding lists and the services of the Small Business office are available to anyone in the United States. As a matter of fact, some of the products desired by these foreign lands, such as tractors, tires, etc., indicate big rather than small manufacturers and operations.

The *Small Business Circular* goes out to the various foreign embassies in the U. S. A. as well as American businessmen who have requested it (it has a circulation now of about 15,000). That's because, under the ICA set-up, all countries that are part of the Mutual Security Program have a right to participate in this bidding. And the chances are that an American business firm will find itself competing in bids not only with other American concerns but also with those of other nations. Israel, for instance, has been getting in on tire bids, Formosa on cement bids, etc.

Foreign Competition

What American concerns ought to keep in mind particularly in facing up to this "outside" competition is the geography involved. That is, Formosa may be able to bid low on a C. O. D.-type cement order desired by Vietnam simply because it is closer to that nation than firms of other countries. Unless American firms bear the transportation factor in mind they may find themselves "overshooting" the fiscal bull's-eye on bids.

It should be pointed out though that despite the international competition and certain geographical ad-

vantages that some countries will have in the bidding that American firms still get a substantial share of the ICA program dollar . . . some 47% of it, in fact. Last year \$964,125,000 was spent by foreign countries under the ICA aegis and \$457,000,000 of it went to U. S. firms. Things this year promise to go about the same way.

What You Can Sell

What are these foreign countries interested in procuring? Well, just about everything. One recent Small Business Circular, for instance, listed these products desired by various nations and for which bidding was requested: *utility station wagons, marine diesel engines, galley and pantry equipment, stud link chain cable, boiler tubes, equipment for construction of transmission and distributing system, steel tapes, oil burning equipment, parachute marine signals, portland cement, bridge structural steel, typewriters, adding machines, copying machines, opaque projectors, hack saw blades, bulb neck forming equipment, penicillin . . .*

And this is actually just a partial list of the equipment and commodities of one of these *Circular* bulletins, which any business firm may consider as an invitation to bid on.

Incidentally, the ICA keeps a sharp eye out to see that there is no skulduggery or miscues in any of this procurement, that the orders do go to the low bidders and that the quantitative and qualitative specifications are properly met.

Getting on the List

Anyway, getting on this *Small Business Circular* list which keeps you in the swim of these international procurement goings-on is the easiest thing in the world. All you have to do is write in and request it. The address is Office of Small Business, International Cooperation Administration, Washington 25, D. C.

Talking It Over

If you have some questions in mind, if you would like to talk over some personal problems of your concern with someone in connection with ICA program business, you'll find the Office of Small Business most helpful. The man in charge, Charles A. Richards, is an old-timer who was an exporter himself for many years and has a grasp of the international business picture from a practical as well as an official and theoretical one. If you want to contact him by phone, his is STerling 3-6400, Ext. 2676.

If you'd like to talk to him in person, that can be arranged without any trouble. If it isn't convenient for you to come to Washington, you can get personal assistance by contacting the nearest U. S. Department of Commerce office. There's one in most of the larger towns and these offices are supposed to have a pretty good understanding of the ICA set-up and international trade in general.

Incidentally, there are some other publications,

obtainable just for the asking, that also should prove most helpful in doing business under the ICA program.

Other Publications Available

There's the *Procurement Information Bulletin*, for instance, that contains information concerning funds allocated on a country basis by broad commodity groups. You should let it be known in what business or commodity field your interest lies.

And there's the *Memos For Small Business*. This lists where the ICA missions are located in each country. If you're interested in letting some countries in particular know about your firm and its products, the thing to do is send these ICA missions some catalogues about your concern and its output. These catalogues will be brought to the attention of these countries whenever they profess an interest in procuring products in your field.

Now both of the above mentioned publications, like the *Circular*, can be obtained from the Small Business Office. But none of these pamphlets contain info concerning ICA-financed purchases made by General Services Administration, Bureau of Public Roads, Department of Defense or Federal Aviation Agency. To be placed on the mailing lists of the foregoing, address requests to:

General Services Administration

Business Service Center, Room 7110, 7th and D Streets, S.W., Washington 25, D. C. Request a mailing list application specifying exactly what materials you wish to receive.

Bureau of Public Roads

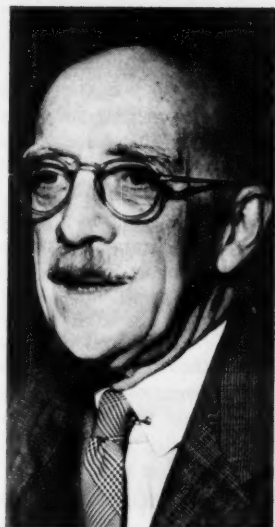
Equipment, Procurement & Transportation Division, 1717 H St., N.W., Washington 25, D. C. Request a mailing list application specifying exactly what materials you wish to furnish. For items of construction machinery and equipment, where parts and services are desired in the country involved, it is a requirement of the bid conditions that the supplier have dealer representation in the country in which the equipment is used.

"How To Sell To Agencies Within The Department of Defense"

An formative booklet may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. The offices responsible for procurement by DOD generally can be determined. If not, inquiries may be addressed to Deputy Chief of Staff for Logistics, Attn: Foreign Aid Division, Operations Branch, Pentagon, Washington 25, D. C.

Federal Aviation Agency

Chief, Procurement Division, Room 2606, Tempo Building T-5, Washington 25, D. C. If there's an FAA regional office near you, it might be well to obtain Standard Form No. 129 on which to make your FAA request. ■



Charles A. Richards looks like someone out of Rudyard Kipling. In fact, he looks rather like Rudyard Kipling. An old-timer approaching his 80th birthday, he is still fit and trim and has a formidable enough of a mustache to seem to be just the party to take charge of some faroff British outpost for the Queen.

But instead of one outpost for a queen, Charles A. Richards has many outposts for the ICA. His Washington desk may not seem quite as romantic as some of Kipling's settings but it's no doubt a darn sight more of a challenge. As head of the Small Business Office for ICA, it is Mr. Richards' job instead of just concerning himself

Steel Corp., vice president and director of Rosin & Turpentine Exports Co., director of Carter Macy & Co., export manager of the Sonora Phonograph Co., and vice president and general manager of Steward, James & Co. For 14 years he was the guiding spirit of his alter ego concern, C. A. Richards, Inc. He was a Paris representative of the U. S. Department of State, served on the World War I War Trade Board, was executive director of the Hoover Export-Import National Committee, was Foreign Trade Consultant for the Office of the Chief of Censor . . . to mention some of his posts.

When World War I broke in Europe, he formed with some \$4000 or so a TNT company that grew into a multi-million dollar business!

He's been Director of Small Business with ICA for seven years now . . . and a more knowledgeable guy in his field would be hard to come by. Furthermore, he has the gift of avoiding globaloney verbage when he talks with you, prefers getting down to brass tacks and plain language. Actually, despite his A-1 karat background, he's a self-made man, started out at the bottom of things as an office boy at 14, knows what it means to fight your way up in the world of international trade.

Charles A. Richards for years was one of the best squash players in the country, as his trophies attest. He played this fast-moving, muscle-straining game even after he'd turned 60, but his wife finally made him give it up. He also, until the last decade or so, indulged in canoeing, tennis and golf.

He's a detective story addict, also likes to go in for cabinet making. Wouldn't be caught dead making anything with nails though, does his carpentering so precisely that "things just fit in."

He is up earlier than most because he likes to make his own breakfast. He says that the bacon you get in restaurants are just too greasy and, throwing modesty to the wind, claims he makes a superb bacon dish that's "just right." ■



CHARLES A. RICHARDS

**ADMINISTRATOR,
SMALL
BUSINESS
OFFICE,
ICA**

with one outpost in India, a la Gungha Din, to worry about all of India, with Ceylon, Formosa, Korea, Vietnam, Pakistan, etc., thrown into the bargain. It is Mr. Richards' job to help American businessmen and manufacturers to establish mutually advantageous commercial arrangements with friendly countries that the U. S. A. is trying to help economically.

And it would be hard to find a better qualified man to handle this globe-girdling job than this bespectacled, bemustached man with the well-modulated voice who was born in Hackensack, N. J., almost eight decades ago.

Mr. Richards was president and director of American International

Those who feel our government has been moving too far to the left can be pleasantly reassured that we haven't gone off the deep end, by going up to the third floor of 806 Connecticut Avenue, Washington, D. C. In bold, forthright letters for one and all to see, there's a government agency with this sign over its portal: OFFICE FOR PRIVATE ENTERPRISE.

And, actually, there's a double significance to this sign and this office.

It has been set-up by our government not only to aid private enterprise in this country but throughout the free world.

This is something of a big order, of course, and this office, which is under the International Coopera-



OFFICE FOR PRIVATE ENTERPRISE

tion Administration and part of the Mutual Security Program, moves on several fronts to accomplish this.

ADVICE TO NEW COUNTRIES

First, it seeks to improve the free enterprise climate in countries which have little knowledge and experience with this sort of thing. Take Ghana, for instance. The new nation has been a colony for many years, with Britain doing all the commercial manipulations. Now suddenly it finds itself on its own. So this African country is helped to establish regulations which would encourage outside capital to come in and build up the nation. There may be other problems that have to be licked too, sanitary ones, that of unskilled labor, etc.

Then our Office For Private Enterprise also will conduct studies in

these countries to see what industries and natural assets could be best developed there.

This information is then disseminated to the commercial world of the U. S. A.

GUARANTEED INVESTMENT

And, last, but by no means least, this government *will guarantee the investments* of U. S. investors, in three most vital and crucial areas.

They are:

Convertibility, meaning in the fair exchange of foreign currency into American dollars.

Expropriation, the seizure of investment property and assets by the foreign country.

War.

For political reasons, these guarantees are not always possible in all countries. But the trend is for the countries to come into this fold. There's no doubt that private American capital is much more likely to go into areas where the U. S. government guarantees this capital.

These are the countries for which investment guarantees are now available:

Afghanistan, Argentina, Bolivia, Chile, Formosa, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Ghana, Greece, Guatemala, Haiti, Honduras, India, Iran, Israel, Jordan, Korea, Liberia, Malaya, Nepal, Nicaragua, Pakistan, Paraguay, Peru, Philippines, Portugal, Spain, Sudan, Thailand, Tunisia, Turkey, Vietnam, Yugoslavia.

Although the Mutual Security Act excludes the guarantee of investment in economically developed countries, guarantees may be obtained for the underdeveloped overseas dependencies of the following countries: Belgium, Denmark, France, Italy, Netherlands, Great Britain.

WAR AND EXPROPRIATION

The guarantees . . . again for international political reasons . . . do not cover all three areas of risk in every case. The *convertibility* factor is covered in each instance but no guarantee can be given at this moment against expropriation in Ar-

gentina, Colombia, and Paraguay, although it looks like this guarantee soon will be applicable to Argentina. And the war risk clause cannot be written now for investments in Argentina, Bolivia, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Ghana, Greece, Guatemala, Haiti, Honduras, India, Iran, Malaya, Pakistan, Paraguay, Philippines, Portugal, Spain, Turkey and Yugoslavia.

A GROWING PROGRAM

With the broad encouragement of their government, more and more U. S. firms are setting up plants and businesses across the seas . . . usually with at least a 20% theoretical return on their investments.

These firms and businesses cover almost the full spectrum of commerce . . . oil, lumber, footwear, typewriters, mining, rayon, TV stations, batteries, paints, chemicals, carbon, staplers, farm equipment, trucks, cars, power tools, drills and so forth and so on.

And these American companies who are taking advantage of "guaranteed investments" to take advantage of opportunities abroad range from some of the biggest concerns to considerable small ones, from Socony Mobil Oil, E. R. Squibb & Sons, Kraft Foods, American Broadcasting Co., Paramount Theaters, Raytheon Manufacturing Co., Otis Elevator Co., Olin Mathieson Chemical Corp., Westinghouse and Monsanto Chemical Co., to Syntrol Co., Henry Drake Writing Fluids, Cincinnati Shaper Co. and National Fastener Co.

All in all, this government has given guarantees to something like \$501,796,940 in U. S. private enterprise investment overseas.

If you're interested in getting into the swing of this and it isn't convenient for you to come to the Office For Private Enterprise in Washington, contact the nearest U. S. Department of Commerce office. There are some 48 of these offices about the country and they are supposed to keep abreast of the opportunities for investment and business expansion overseas.

SINCE its conception some eleven years ago, NATO has become less and less controversial as its usefulness is demonstrated. Whatever critics may say there are three major points worth bearing in mind when evaluating the effectiveness of the North Atlantic Treaty Organization.

1. Since the formation of NATO peace in the North Atlantic has been preserved.
2. There has been no single instance of Soviet expansion Westward since NATO was formed.
3. The member countries have increased in strength and are better able to resist attack.

1. PRESERVATION OF PEACE

From the earliest days of NATO, the preservation of peace has been chiefly dependent upon the balance of power between East and West. In these ticklish times, with Soviet missile power growing at an explosive rate, it is essential to have an increasingly well-armed allied bloc. Were the NATO nations not so well equipped, the possibility of a major war would be significantly in-

creased. During the first seven years of NATO the armed forces of member countries more than quadrupled. The mere threat of a strong force in Western Europe would be a major factor in deterring aggression. There is, however, an even more powerful peacemaker: nuclear weapons. NATO stands prepared to use these in the event of aggression. As Field Marshal Montgomery stated—"Subjected to a major attack we would use the nuclear deterrent as a weapon to help in our defense—even if nuclear weapons were not used against us in the first instance." Although it is debatable whether, when faced with the decision, a NATO nation would actually throw the all-out war switch, the threat is still there. And it has worked.

2. STOPS SOVIET EXPANSION

One of the principle objectives of the North Atlantic Treaty Organization is to combat the Western expansion of the Soviet Union. This facet of NATO is often forgotten because of the effectiveness with which they are accomplishing this mission. The addition of Greece and Turkey to the NATO roster was a move that very probably saved these countries from falling into Soviet hands. Likewise, the attempt of Russia to take over the city of Berlin could not have been stopped by any one nation without at least a minor scrimmage. The existence of NATO was a deciding factor toward the weakening of Soviet policy on Berlin, and the scarecrow role of NATO will continue to curb Soviet Westward expansion.

3. INCREASED STRENGTH

The growth of NATO since its inception has been significant. At present it could safely be said that the numerical strength of NATO forces in wartime would be more than five times that of 1950. The greatest increase in NATO strength, however, cannot be measured numerically. Increased firepower and combat value of troops are intangibles which can be demonstrated but defy the statistician's curve. The large-scale exercises which have been carried out over the past few years, such as the recent Operation Sword-Thrust, have honed the NATO forces to a razor-sharpness. Modernization of firearms has taken place across the board. Without

NATO this could not have taken place to the extent that it has. True, modernization would have taken place in such countries as France, England, Canada and the United States, but what of Greece and Turkey? Without these countries safely tucked within the folds of the NATO garment, the United States and other highly developed countries would be hesitant about supplying these countries with significantly powerful arms.

Perhaps the greatest stride NATO has taken toward increased weapon strength is common production of arms. This system is in its infancy, and is just beginning to come into its own.

With each member producing a portion of a weapons system, international scientific talent and industrial know-how could be utilized to the fullest. Steps have been taken in this direction, the most significant of which is the recent agreement among several NATO nations to produce components of the HAWK missile system. Although some might complain that this is taking business out of the U. S., it must be remembered that the money saved by such ventures can be redirected to more advanced systems and increased R & D.

SUMMARY

NATO has many problems to meet, and it certainly cannot be described as an ideal organization. Considering the differences of policies of the members, and the relatively weak framework within which it must operate, NATO must be complemented on the job it is doing. Perhaps the greatest weakness of NATO's structure is the lack of authority over member nations. In case of aggression against a member, each other nation must decide for itself what action is necessary for it to take to restore peace and assist the injured party. There is much, however, than can be improved upon within the present structure. Standardization of parts, settlement of disputes between NATO countries, military and non-military aid, are only some of the areas in which NATO can move forward and be of valuable aid in maintaining peace. It is doubtful that any other body, such as the United Nations, could replace the important role played by this powerful peacemaker. ■

NATO

North Atlantic Treaty Organization

by Walter Seager/DATA

A LAND OF gorgeously sunny weather . . . beautiful golden beaches . . . exotic ladies . . . and no taxes.

Sounds too fantastic to be true, an especially dreamy figment of the imagination . . .

But it's so—actually, truthfully, specifically, bona-fidedly so.

And you don't have to go three-quarters of the way around the world either.

In fact, you don't even have to leave the U. S. A.

Well, technically, anyway. Actually, you do have to cross some water. But you can get there in just a couple of hours by plane.

The place is the Port of Richness. Or Puerto Rico, to give it its more Spanish and more popular name.

In a way of course, it is a part of the United States. It sort of holds the same relation that Hawaii used to. And, in fact, there's talk now that Puerto Rico may become the 51st State.

This, by the way, is met with decided mixed feelings in Puerto Rico. If an election were held on this Caribbean island today on whether to become a State, it is decidedly doubtful whether it would pass.

States, you see, can't invite concerns to take up with them, making the proposition, look, tell you what,

3. Seven years of exemption on dividends paid by a tax exempt entity to bona fide resident stockholders.

4. 10 years of tax exemption on income received from the lease of real property constructed or installed, or income derived from the lease of equipment or machinery.

5. Freedom from property taxes on goods brought to Puerto Rico for processing or assembly if the finished product is shipped out of Puerto Rico.

6. Freedom from property taxes on raw materials used for manufacturing while in the hands of importer or producers.

7. Freedom from excise taxes on production equipment on industrial safety equipment and on goods transferred from one manufacturer to another or to a shipping agent for export.

8. 10 year exemption from municipal license fees.

Government Controls

Can just anyone, then, simply pick up his belongings, move himself and his plant over to Puerto Rico and enjoy this taxless paradise?

The answer is—yes . . . and no.

Theoretically, there's really no reason why anyone couldn't start a Puerto Rico industrial-type operation. But the Puerto Rico govern-

ments" to the welfare of Puerto Rico.

In other words, Puerto Rico would like to feel that the firms coming in to set up shop are worthwhile ones and not the fly-by-night type that could wind up being disruptive and a nuisance.

Operation Bootstrap

Since "Operation Bootstrap," as this tax-exemption business program is sometimes referred to, was adopted 10 years ago, *more than 600 companies have taken advantage of this island hospitality and expanded their operation from the mainland to Puerto Rico.*

For instance, from the State of Massachusetts alone Puerto Rican operations have been started by these companies:

Bruce Diamond Corp., Bellavance, Capitol Engraving Co., Clayton Supply Co., Commonwealth Plastics Corps., Converse Rubber Corp., Electronics Corp. of America, General Electric Co., Harburt, M. Hoffman & Co., Industrial Electronics Co., Kulin Waste Co., Machine Composition Co., Marson Co., Remington Record Syndicate, H. Remis & Co., Savage Army Corp., Shawmut, Sherman Classics, Spencer Press, Sprague Electric Co., Valor Manufacturing Co.

And apparently nearly all these mainland companies have made this move without regrets—and with profit. Many have found conditions so favorable that they have subsequently expanded *within* the island. Some have even taken to manufacturing products there altogether unrelated to the original operation.

Most significantly of all though is the fact that, of the companies whose 10-year tax-free status is beginning to expire, virtually all of them are continuing with their island operations.

Low Cost Labor

They are finding Puerto Rico a nice place to be, taxes aside. There's an abundant supply of relatively low-cost labor, labor relations are generally good, the climate is invariably delightful and, what is more, Puerto Rico is fast develop-

OPERATION BOOTSTRAP

you put up a plant here and you can forget about taxes, federal and local. Be our guest.

Business Exemptions

But, not enjoying State status, *Puerto Rico enjoys offering American mainland business who'll come to the island this offer:*

1. Freedom from all federal taxes except for excise taxes on taxable goods shipped to the U. S.

2. 10 years of exemption from the Puerto Rican corporate and partnership tax.

ment just doesn't let business men and their enterprises come in indiscriminately. It exercises the privilege of keeping a check on this flow, using its own good judgment about things.

The law is that it is up to the Governor of the island to make the final decision on what enterprises should be allowed to come to Puerto Rico and his decision is based on the nature and extent of operations, technology involved, employment resulting or other "notable contri-

ing into a major manufacturing and trade center serving the entire Western Hemisphere Market.

You may find that even if you can't get in on the tax-exemption set-up that just accepting the general status of Puerto Rico may be a more favorable tax situation for you and your business than if you were bedded down in the States. But if Puerto Rico truly opens up her arms to you, in her most bewitching taxless form, she'll be more than just beguiling. There are island governmental agencies that will help you as much as they can to adjust to this sub-tropical site . . . they'll not only help you find a good location, they'll even assist you in seeing to it that the plant is properly built.

Getting Started

The machine that makes "Operations Bootstrap" work is the Economic Development Administration. It not only undertakes to answer all questions that a prospective investor in Puerto Rico may have on his mind but it arranges visits to the island for these people and, if fiscal matters happen to be something of a problem, even helps obtain loans for these proposed enterprises. It provides engineering and marketing assistance to both new and old businesses. It makes studies to see why some succeed and some fail . . . as a result failures have been few. And it sort of serves as a hospitality committee too, doing its best to make newcomers to the island feel at home.

Liabilities

Yes, Puerto Rico has some liabilities. Its natural resources are limited. So is the local investment capital. And you won't find as much general industrial know-how here.

But these last two things can be overcome and Puerto Rico is making the effort. And, in the meanwhile, it can offer, in addition to a tax-break, these advantages: Excellent roads. Fine harbors and airports. A climate that's never cold and seldom hot (winter mean temperature, 73.8 degrees — summer mean temperature, 78.8), adequate

electric power, a good supply of water for industrial use, a stable, democratic government.

So progressive has Puerto Rico become that it is even thinking in terms of atomic energy now.

Internal Problems

You ask, well, if Puerto Rico is such a wonderful place, why is there so much migration from it by the natives to the mainland? A fair question. The answer is that it is a tight little island. It's only 100 miles long and 35 miles wide. It could

sells around \$500,000,000 worth of stuff a year to the U. S. A. mainland, its principle consumer. San Juan, Puerto Rico's No. 1 metropolis, has a population of 500,000 and is as bustling as almost any town you'll find on the mainland.

Fast Action

If you should make an application to establish an enterprise on Puerto Rico, you'll get prompt action. You'll know within at least 90 days what the score is. If "you're in," if your concern has been ac-



Puerto Rico abounds with plentiful and dexterous labor. These workers in the Industrial Plastics plant at Trujillo Alto are making plastic wall tiles.

be tucked in a corner of most of our States. Yet it has some 2,300,000 people living on it. It is one of the most crowded places on earth. For a long time it was dependent almost altogether on its sugar crop . . . when that was off, the misery was truly widespread.

Thirty years ago Puerto Rico was called "the poorhouse of the Caribbean." The average per capita income was \$121 a year. Today, thanks to "Operation Bootstrap" and the determination of the island to industrialize itself, this has more than quadrupled.

Further proof of Puerto Rico's growing economic vitality is the fact that in the past decade its purchases from mainland U. S. A. have soared from \$300,000,000 to more than \$620,000,000 a year. On a per capita basis, Puerto Ricans buy more from the U. S. than any other important market, including Canada. Puerto Rico, on the other hand,

accepted for a place in the Puerto Rico sun, then you can expect the utmost cooperation to help you get adjusted and oriented.

You can get your application blank for a Puerto Rican business site . . . and the answers to any particular questions that you may have in mind about Puerto Rico . . . from any of four Economic Development Administration offices in the U. S. A. They're located at:

666 5th Ave., New York City, 19. (Circle 5-1200)

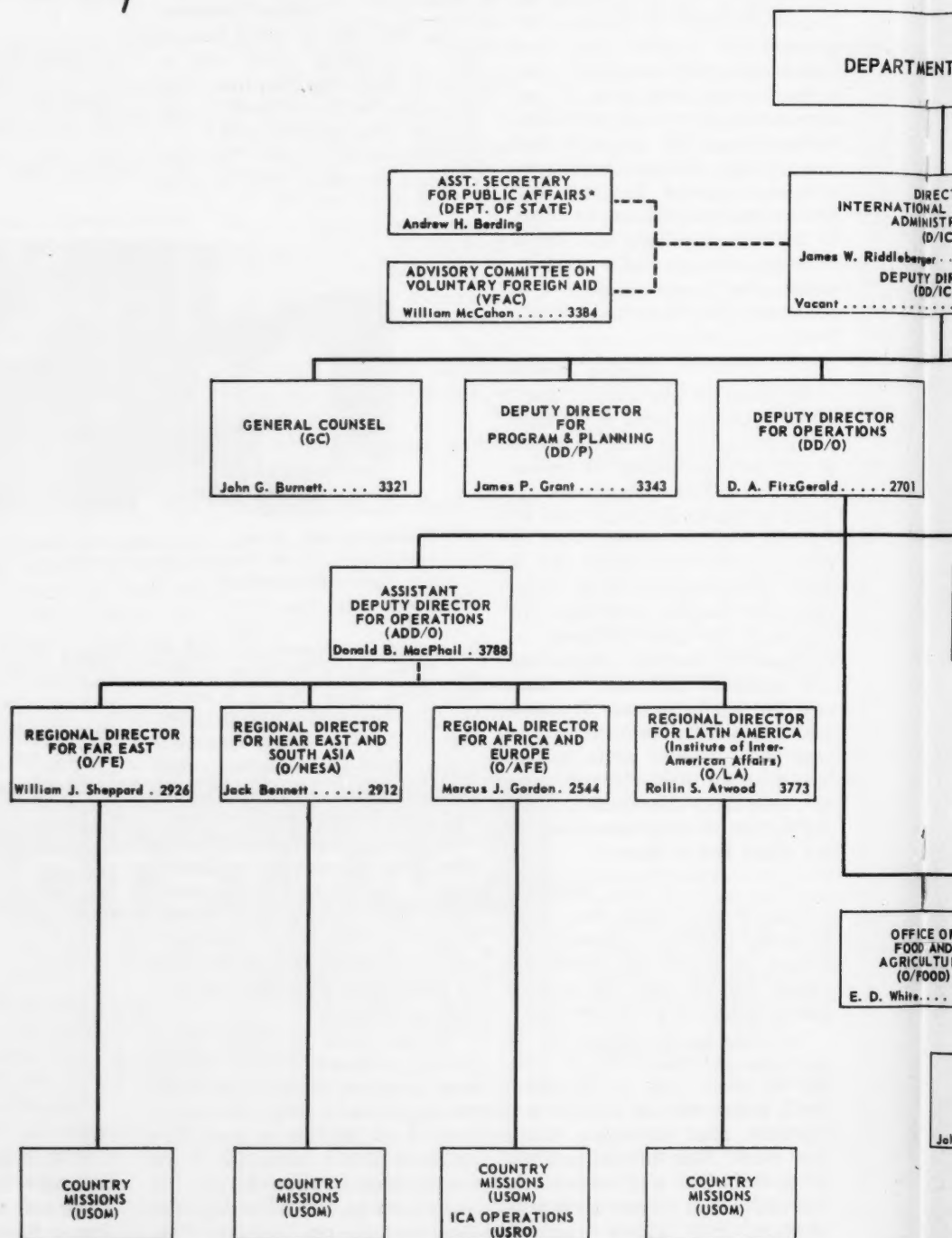
79 West Monroe St., Chicago, 3. (ANdover 3-4887)

530 West 6th Street, Los Angeles, 14. (WEbster 1-1225)

Suite 709, DuPont Plaza Center, Miami 32, Fla. (FRanklin 1-5446)

If Washington is a more convenient place for you, you can contact: Office of the Commonwealth of Puerto Rico, 2210 R St., N. W. (ADams 4-7488) ■

DATAGRAF / CHART-OF-THE-MONTH



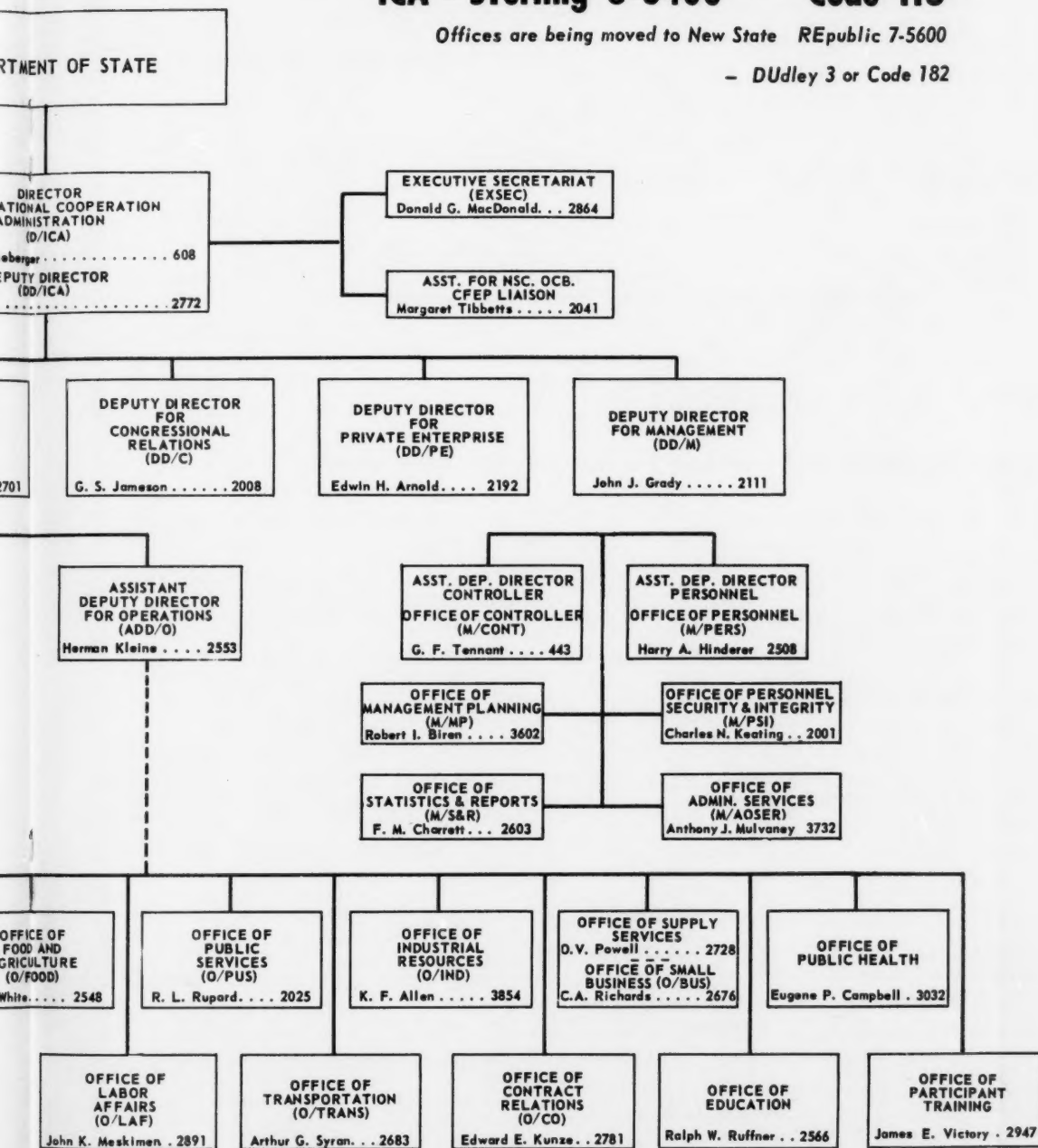
*Responsible for Mutual Security Program Information Activities



ICA - Sterling 3-6400 — Code 113

Offices are being moved to New State REpublic 7-5600

- Dudley 3 or Code 182





underwater engineering

published bi-monthly

guaranteed total circulation

15,227

next issue: underwater communications

★★★ Mr. Advertiser!

Here's how UE classifies and verifies its readers for your profit:

The basic quality of an industrial publication lies not only in editorial excellence, but also in the care with which valuable readers are attained. We proceeded as follows:

1. We carefully prepared a list of all products used within the underwater and oceanography markets.
2. We developed a list of manufacturers making these products.
3. We screened all manufacturers...asked them to supply us with lists of their personnel in research, management, development, engineering and other specialized capacities in order to

obtain a hard core of influential buyers and specifiers.

4. We went to the Navy and secured complete lists of individuals functioning as vital factors within our undersea defense program.
5. The compiled names were screened and cross-checked, and reduced to a total of 15,227 names... a positive, able-to-buy list.
6. All recipients are being mailed a subscription qualification card, which gives job-function, manufacturing situation, type of product most involved. This procedure will continue at regular intervals, in order to keep the list up-dated.

UNDERWATER ENGINEERING Circulation Department
2775 South Moreland Blvd., Cleveland 20, Ohio

FREE Subscription Qualification* Form

PLEASE PRINT TITLE/RANK _____

NAME _____

Company or

Government Installation _____

ADDRESS _____

CITY _____

SHIP, BASE _____

ZONE _____

STATE _____

JOB FUNCTION

☐ Administrative ☐ Engineering ☐ Procurement ☐ Research ☐ Sales

☐ Ship Builders, Submarine

Design, Naval Architects

☐ Prime ☐ Sub

☐ Powerplants & Reactors

☐ Prime ☐ Sub

☐ Torpedoes, Rockets, Missiles,

Explosive Charges

☐ Prime ☐ Sub

☐ Checkout & Test

☐ Prime ☐ Sub

☐ Computers, Instrumentation,

Communications

☐ Prime ☐ Sub

☐ Radar, Sonar,

Detection Devices

☐ Prime ☐ Sub

☐ Transport, Launching &

Materials Handling

☐ Prime ☐ Sub

☐ Research & Development

☐ Oceanography

☐ Prime ☐ Sub

☐ Other _____

(describe) ☐ Prime ☐ Sub

*UNDERWATER ENGINEERING Magazine circulation is executed on a controlled unpaid basis. Engineering, management and procurement personnel actively engaged in undersea warfare and oceanography are eligible.

★★★

underwater engineering
qualifies and maintains
circulation excellence...
by continued (once within every
two-year period) contact with
the recipient.

... Straight talk to Sales Management

"ALL OF US have certain irritants that, to use the current phrasing, really bug us. One thing that really gets to me is reference to the term "marketing concept" as a cliché. The word cliché means, of course, a stereotyped and common-place phrase. The connotation is also that the subject terminology is so overworked as to be meaningless. Each article in the Defense Marketing Forum series is directed to the practical demonstration of the marketing concept as it appears to the defense contracting industry."

—Pat Thomas

Using the Marketing Concept to Improve Proposal Effort

THIS MONTH'S ARTICLE deals with the basic building blocks of successful defense contracting—the **proposal effort**. The mortar that binds this effort into a solid market development program is a well-directed customer contact program.

Most of DATA's readers have a fairly good idea or know exactly what dollar figure is budgeted and is being expended on proposals. You know that even a nominal proposal effort can run \$10,000. (Ten men x 40 hours per week x \$10 per hour x 2 weeks is \$8000.) Major proposals can exceed this kind of money 10 - 20 - 30 fold.

Do You Analyze Results?

Now, my next point is this—how many of the readers of this article can say that their firms are even spending the cost of a nominal proposal effort during the year to do a serious analysis of why they won or lost business in recent years. How many contractors keep a running survey of this subject? I get tired of hearing about everyone having 20-20 *hindsight* vision. The main value of history it seems to me is for its use in influencing the future. When we don't recognize this we certainly don't have 20-20 *forward* vision.

One of my colleagues in a company whose sales were declining said to me some time ago that proposals were their most important product. He called more recently to say that he felt that now proposals were their only product.

I think that perhaps we should regard proposals as a product. This frame of mind will cause us to analyze this product with the same care as we do our hardware products. Proposals are a "thought product."

Why You Should Analyze Proposal History

1. The market today is firmly competitive in almost any phase of the total defense endeavor. There is almost no process or product that enjoys strong proprietary protection. Technology is moving far too fast for this. It is becoming increasingly essential, therefore, to submit proposals fully sensitive (responsive) to the customer.

CHART I

Typical Proposal Evaluation Factors and Considerations Used By the Customer

ENGINEERING

1. Does the proposal exhibit an in-depth grasp of the overall problem?
2. Has the bidder adhered to the specification on a technical basis to the extent that the proposal is truly responsive?
3. Where the bidder has deviated from the specification, has he clearly spelled out the areas of deviation and the reasoning behind the deviation?
4. Are these deviations of truly practical advantage?
5. Does the technical approach avoid overly constrained design (sophistication in excess of requirements, tolerances so tight that production productivity will suffer)?
6. Are the qualifications of the key engineering personnel adequate to the task (as far as can be determined by the proposal)?
7. Has serviceability, long term ease of maintenance, ease of maintenance and logistic problems been properly treated? In other words have the practical aspects of use by the customer been built into the operational concept?
8. Does the technical proposal exhibit a clearly superior, order of magnitude or better approach or merely a modest extension of the state of the art? (Providing this is a specification goal.)
9. In areas of technical weakness has the bidder clearly stated how he will compensate—for example, through the use of specific consultants?

2. Through objective analysis your company will learn more about how the customer views your firm; its weaknesses, its strengths. Certainly strengths should be better exploited and weaknesses corrected. You will find through such a study that there are conditions, you weren't properly sensitive to. Your technical excellence and market command may be carrying over to the customer as something of a high and mighty attitude. You may be guilty of overly constrained design—attempting to sell too much of a better mousetrap. As we learn to see ourselves through the customer's eyes we should be able to consistently improve our ratio of contract dollars awarded to proposal cost.

Who Should Run Such Surveys?

This kind of analysis is best done by market research. One of the chief contributions of the market research section is that it can be entirely objective. This is also one of the main hazards of being in the market analysis business.

Almost any area or program of importance is tinged with emotion. Market researchers find that they are more often than not waving a red flag in someone's face. Generality produces nothing of worth; objectivity on the other hand is seldom appreciated by those who are adversely affected. My experience has been that on the whole all major segments of the firm will cooperate on an objective basis if properly approached—and a thorough analysis of proposal history means contacting Engineering, Financial and Management personnel as well as the Customer.

Methodology

1. **Environment**—Get management to

agree that such an analysis is desirable and potentially useful. Point up the fact that because this survey will cut across all types of responsibility an environment must be created that lets everyone concerned know that the first team is behind this project and nothing short of complete freedom from white-wash will do. If sales are in a downward trend, existing concern will work to the research team's advantage even though this might not seem to be the case.

2. Sampling Technique—If the research is to be done by a corporate or division level staff it will be necessary to construct a representative sample, that is large enough that an appreciable increase in sample size would not materially change the results. At the department level or for smaller firms it might be possible to take all proposals over a suitable time period. To go backwards in time in a depth analysis is difficult for more than a two-year period.

Make certain that your sample of pro-

CHART II

Typical Proposal Evaluation Factors and Considerations Used By the Customer

MANAGEMENT

1. Is the master schedule truly workable and provide built-in safety factors, providing assurance of long-term schedule compliance?
2. Does the subcontractor scheduling provide confidence that critical subsystems and components will meet delivery dates?
3. Does the past performance of the bidder exhibit a superior ability to keep promises?
4. How much help would this bidder require?
5. Is this bidder highly experienced in this type of endeavor?
6. Is rent for government equipment available that is adequate to the task?
7. Has the bidder fully delineated the amount and types of subcontracting to be done (the make or buy program)?
8. Does the bidder clearly demonstrate that first team and/or corporate management will take a high level of continuing interest in the program and will assume responsibility for compliance with program objectives?
9. Is the management program detailed in concise manner as to exactly how subcontractors' managements integrate into this program (providing the bidder is acting as systems manager)?
10. Does the bidder provide an organizational structure (including first and second tier subcontractors, if necessary) that gives ample evidence of effective program management on a top to bottom basis?
11. Does the bidder now have ample facilities and labor force to handle this work?
12. Has the bidder fully defined his qualification testing program?
13. What is the bidder's historical record as to conformance with reliability requirements?
14. Does the bidder's approach to reliability, as delineated in the proposal, provide satisfactory assurance of meeting or exceeding the requirements of this program at a moderate or sensible cost?
15. Is the receiving inspection program compatible—both the requirements of the program and the bidder's own quality control standards?
16. Does the bidder utilize the latest advancements in production techniques?
17. Does the bidder have a thoroughly up-to-date production control program?
18. Does the bidder exhibit a high level of production competence for this type of program?
19. Is the bidder's service organization, as presented in the proposal, of sufficient size and quality to provide superior field support to this program?
20. What is the bidder's history in terms of field service compliance with past or current programs?

CHART III

Typical Proposal Evaluation Factors and Considerations Used By the Customer

PURE ESTIMATING

1. How does the bidder's price compare with our own pricing group's estimate?
2. How accurate has this bidder been on former quotes—what is the history of his costs over the course of specific past programs?
3. Has the bidder applied his current full overhead rate to this program—or delineated areas of deviation?
4. Has the bidder applied nominal fees for this type of program?
5. Are the bidder's quotes as to each type of cost factor realistic (rental fee for government equipment on commercial work, labor rates, etc.)?
6. Has the bidder provided assurance that proposed subcontractors, have in turn, submitted their lowest possible price consistent with requirements of this program?

posals slices across all product areas and technologies, is balanced as to military agencies and customers within the contracting industry, and gives proportionate attention to dollar value groupings.

3. Analysis of In-house Records—Company files are a gold mine of information for the market researcher. For use in this survey you will need to first order some extra file cases for storage of the materials to be pulled together. You should start with the PR's, HEQ's, SR and QDRI specifications. Next you need to obtain copies of the B&P quotes and proposals. Be sure to get the cover letters which accompanied the proposals. Sometimes these cover letters contain important cost data and in any event should be analyzed for complete responsiveness. Cover letters sometimes suffer from a boilerplate problem as do the management sections of proposals.

4. Interviews —Interview personnel within your company who had responsibility for the proposals and those personnel who made significant contributions to them. Following this you should obtain debriefings from the Customer. In most cases the Customer, be it prime contractor or military agency, has already given a debriefing to someone in your company, often the cognizant field representative. But you have a larger purpose in this survey and make this known to the Customer. You want to learn how the Customer typically goes about this business of evaluation in order that your company may develop tailored systems for self evaluation in advance

of proposal submittal. Sometimes the Customer has a fairly simple evaluation scheme, more often (and on an increasing scale) the Customer will open your eyes with his thoroughness.

5. Analysis—As with all surveys, the final step is data reduction . . . the distillation of a large mass of factual data into objective interpretation. Don't pull your punches but also don't editorialize. Be brief, be factual and be diplomatic. It's just as important to point up what was correct about an effort that was unsuccessful as to put the finger on what was wrong. In short, don't be a poison pen.

The best guide for self analysis and development of true customer orientation is the completion of typical evaluation factors and considerations used by the customer. In order to help the readers of this article I have talked with a number of purchasing agents and their inputs appear on Charts I through IV.

You should use this kind of material in the preparation of interviewing forms. Do not rely on informal procedure for interviewing respondents in this type of survey—you will certainly have to jog memories with specific questions.

Be sure to include a less complex analysis of the leading competition and the winner for each proposal. List the competition, find out how they scored if you can and at least obtain an assessment of their strengths and weaknesses.

The subject of proposal effort soul searching has not been fully covered by

the text of this article. We haven't discussed the proposal appearance and packaging considerations and yet you must rate each proposal for this consideration. Contractors can over-do as well as under-do this aspect. We haven't covered the reduction of raw data into a limited number of types of reasons why competitions were won or lost. Finally, we haven't discussed the parameter you can use to determine the effectiveness of your proposal effort.

Therefore, These Additional Comments:

1. As to effective packaging: The military is somewhat jaded by expensive covers. Spelling mistakes are inexcusable. Graphs and charts which require the proposal to be turned in various directions are annoying. Boilerplate proves little. Reliability charts should show control starting with the president. The organizational charts must depict effective system management. Important technical processes and equipments available for these should be highlighted. Does the proposal follow the organization of the original REQ? Does the sentence, paragraph and general organization make for easy reading, exhibiting a progressive and logical development? Does it flow?

2. Types of reasons for success or failure: Don't worry about this. These are the natural fallout of your survey and will be self-suggestive. In your final tabulations restrict yourself to between 10 and 15 reasons for either success or failure if you can.

3. Parameter to determine effectiveness of your proposal effort: The best one I can think of is the total value of dollars awarded versus the dollars expended to get the contracts. (Total proposals should be used.) Analyze the total cost versus gain for each product area. This type of data is essential to the development of a scheme of analyzing your firm's effectiveness in its total marketing effort. But this is another story.

Summing Up.

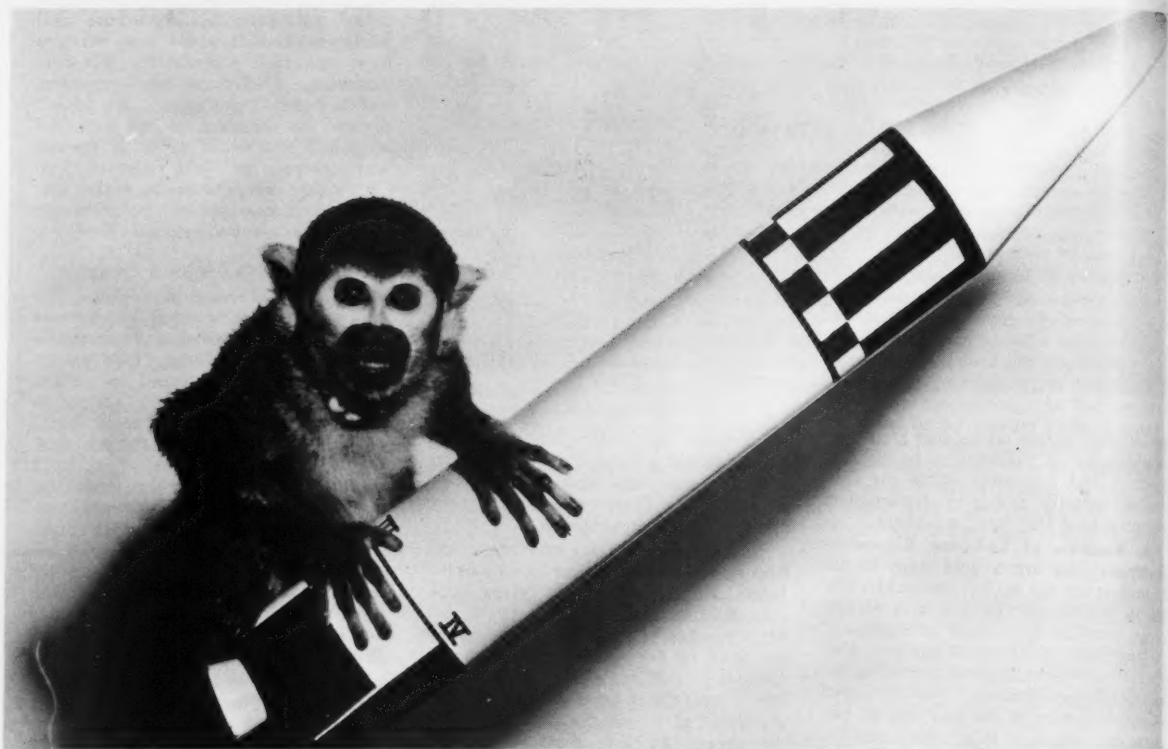
This type of survey is going to bring to light some things which you might expect to be the case. For example, the fact that most business comes from areas of proven technical competence. But it will also point up many surprising facts as well. For example, you may find that you are not achieving a normal pattern of success with the Army (even after allowing for a low identity factor) because you are over designing for their requirements. This is a typical error of contractors primarily identified with the Air Force.

Once you start this good habit of proposal analysis, make it easy on yourself and set up the machinery for perpetual up-dating. There are not many items of greater importance, for proposals are, indeed, a most important product. ■

CHART IV

Simplified Typical Evaluation Weighing Factors

	Highly Technical Programs	Programs of Average Technical Content
Engineering	35%	25%
Management	30%	50%
Price Estimating	35%	25%
	100%	100%



Space Monkey "Baker," passenger, with model rocket (Official U.S. Army photo)

PROBLEM CHILDREN ARE OUR BUSINESS

From the troop-carrying Weasel of World War II to the safe re-entry of space travelers Able and Baker, meeting the advancing needs of our warriors and wanderers has been an important concern of Studebaker-Packard Engineering.

The nose cone that brought the space monkeys back through the atmosphere, for example, was developed and built by S-P's Cincinnati Testing Laboratories division, which specializes in organic, organic-ceramic and organic-metallic coatings. In other areas lie the experience of S-P's Gering Products division in structural plastics, and that of the Gravely Tractor and Clarke Floor Machinery divisions in the design and application of both gasoline and electrical, propane and battery-driven motors. S-P's Onan division is a famous maker of electrical generators and gas or Diesel power plants up to 130 KW. The long Special Vehicle record of our Automotive division is well-known. Such wide experience may help solve a variety of problems you face today.

Each or all of Studebaker-Packard's six divisions can work with you in Research, Development or field-ready Production—either on a prime contractor or subcontractor basis. Studebaker's solid financial structure can meet any Project needs, even to establishing specialized new divisions if required. Inquiries should be directed to the Studebaker-Packard office, 1725 K Street N.W., Washington, D.C. Tel. FE 3-9188.

**Whatever your project, problem or payload,
Studebaker-Packard offers proven R & D capabilities**

AUTOMOTIVE DIVISION • CINCINNATI TESTING LABORATORIES DIVISION • CLARKE FLOOR MACHINERY
DIVISION • GERING PLASTICS DIVISION • GRAVELY TRACTOR DIVISION • ONAN DIVISION

DATALOG OF MISSILE, SPACE, AND DETECTION PROJECTS

MILITARY MISSILES, NOVEMBER 1960

★ New information this month

AA—Air-to-Air
AS—Air-to-Surface
AU—Air-to-Underwater

ARM WS-121B AF

Type: AS
No contracts announced.

★ ARM project by AF cancelled. Interest by Army in ARM slackens, but rumored that Navy highly interested in the Anti-Radar Missile.

ARROW Army

Type: AS prime: Grand Central
guide: stabilizing fins
power: Grand Central Rocket

★ Sold off the shelf by Grand Central, this versatile take-off of the LOKI rocket is now used for sounding, sled tests and drone boosting.

ASROC Navy

Type: UU prime: Minn.-Hon.
length: 15 ft. weight: 1000 lbs.
guidance: stabilizing fins

★ 5 destroyers now equipped with ASROC missiles. By '64 Navy plans to have 150 destroyers and cruisers equipped with ASROC Anti-sub rockets. Dvlpmt cost slated at \$65 million. Latest award, \$4.9 million to Minn.-Honey. for continued dvlpmt.

ASTER Navy

Type: SU prime: APL/Vitro
guide: Ford range: 30 mi.
power: Allegheny/Rocketdyne

Ship launched TERRIER carries ASW torpedo to surface destination, where torpedo drops off for attack. May replace SUBROC. Now in R&D.

ATLAS SM-65 AF

Type: ICBM prime: Convair
guide: GE/Burroughs/Am. Bosch
power: North American
nosecone: GE length: 75 ft.
weight: 260,000 lbs. dia: 10 ft
range: 5500 naut. mi.

★ FY '62 funding expected to be apx \$11½ billion. Increase mostly slated for ATLAS launch site construction. Pads at Warren AFB, Wyoming nearing completion. Score to date: 44 successful, 11 partial and 15 failures.

BOMARC IM-99A IM-99B AF

Type: SA
prime: Boeing power: A—Marquardt
guide: Westinghouse B—Thiokol
funding: \$421.5 million on BOMARC-B in FY 61
speed: Mach 2.7
range: (A) 200+ mi. (B) 400+ mi.

★ FY '62 funding for BOMARC B estimated at \$100 million, after official ok for quantity production, through 1962.

BULLPUP ASM-N-7 Navy

Type: AS prime: Martin
guide: radio command/Republic
power: Thiokol

★ Apx \$25 million more in funding for BULLPUP A and B to be spent thru 1964. BULLPUP C, or similar improved weapon system scheduled for funding '64 thru '70.

SS—Surface-to-Surface
SA—Surface-to-Air
SU—Surface-to-Underwater
UU—Underwater-to-Underwater

CLAM AF

Type: AS power: Ramjet
No contracts announced.

★ This Chemical Low Altitude Missile was a study and research project. No further funding action expected.

COBRA USMC

Type: SS
prime: Boelkow Entwicklunger, W. Germany
(distrib. U.S.: Daystrom)
guide: wire guided
power: Solid BE speed: 191 mph.
weight: 24.6 range: 1 mi.

Daystrom is turning out 1000 COBRAS a month for USMC.

CORPORAL SSM-A-17 Army

Type: SS power: Ryan
prime: Firestone speed: Mach 3.5
guide: Gilfillan range: 85 mi.

Giving way to SERGEANT. Many CORPORAL birds being used as targets for NIKE family.

DAVY CROCKET Army

Type: SS prime: Rock Island

★ FY '61 production funds: \$20.6 million. Production in substantial quantities is expected to commence early '61. FY '62 funding expected \$20 million for apx 500 DAVY CROCKET missiles and related equipment.

EAGLE JAAM-N-10 Navy

Type: AA prime: Bendix
guide: Bendix/Sanders/Westinghouse
power: Aerojet speed: Mach 4
frame: Grumman range: 100 mi.

★ Data estimate FY '62 funding \$14 million. Dvlpmt cost for "Missile" program est \$3 billion. EAGLE has long range capability, and can operate at high altitudes. Proposals strong for EAGLE with Anti-Missile capability.

FABMIDS Army

Type: SA

★ Feasibility studies have been let for this anti-missile defense system. Funding FY '61 \$100 million. Most expect Raytheon to grab prime spot in dvlpmt. Expect \$300 million funding FY '62.

FALCON GAR-1, -2, -3, -4, -9, -11 AF

Type: AA power: Thiokol
prime: Hughes speed: Mach 2+
guide: Hughes range: 5 mi.

★ Dummy FALCON for pilot training in production and "operational."

GAR-3 is operational, SUPER FALCON GAR-3 in test. GAR-2 and 4 are infrared guided. GAR-9 is radar guided with nuclear warhead. Long range GAR-9 now being cut back in production. GAR-11 installed on F-102 Delta Daggers, giving them nuclear capability. F-102 will also carry GAR-10 and GAR-2A.

GENIE MB-1 AF

Type: AA power: Aerojet
prime: Douglas speed: Mach 4
guide: Hughes range: 1.5 mi.

★ Complete phase-out by '63 in favor of guided FALCON missiles.

ICBM—Intercontinental Ballistic Missile
IRBM—Intermediate Range Ballistic Missile
ECM—Electronic Countermeasures

HAWK M-3 Army

Type: SA
prime: Raytheon power: Aerojet
guide: Raytheon range: 22 mi.

★ Plans for SUPER HAWK, under name FABMIDS, well underway with study contracts.

HONEST JOHN M31 Army

Type: SS prime: Douglas
guide: unguided
power: Hercules Powder/Thiokol
range: 15 mi.

★ FY '61 funding \$22 million. SLIM JOHN (XM50) is improved model minus heavy nose. Similar Soviet missile is the T-5B and T-5C.

HOUND DOG GAM-77 AF XGAM-87A

Type: AS
prime: North American
guide: Autonetics
power: Pratt & Whitney (J52)
funding: \$170 million in FY '61
speed: Mach 1.7 range: 500+ mi.

★ Using extra boost from HOUND DOG engines enables use of B-52 from smaller airstrips. Range of missile not affected, as HOUND DOG can be re-fueled from mother ship. 2 major studies now underway. 1. A study by NA to decrease radar reflection of missile, enabling it to sneak by enemy radar. 2. A feasibility study to explore possibility of mounting a weapon beneath HOUND DOG wings.

PROJECT HYDRA Navy

Type: Sea launch platform
Obj: Test feasibility of launching missiles from sea platform

Concept of spar buoy (vertical-floating) launch for large solid-propellant rockets.

JUPITER SM-78 Army-AF-NASA

Type: SS prime: Chrysler
guide: Ford Instrument
speed: Mach 10
power: Rocketdyne range: 1750 mi.

Contract with Chrysler expires April, '61. Rumored that Army may not renew.

LACROSSE SSM-A-12 Army

Type: SS power: Thiokol
prime: Martin speed: Mach 2
guide: Federal Tel. range: 20 mi.

★ Phasing out after '62. Slow-down in funding expected FY '62, with \$25 million expected. FY '61 funding \$50 million.

LITTLE JOHN Army

Type: SS
prime: Emerson guide: unguided
power: Hercules Powder
range: 10 mi.

★ Limited operational use with troops. Expect drop in funding for FY '62 down to apx \$20 million, for phase out.

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

MILITARY MISSILES, NOVEMBER 1960

★ New information this month

LOBBER Army

Type: SS range: 15 mi.
Designed for attack and supply missions.

LULU Navy

Type: AU prime: General Mills
LULU atomic depth bomb is operational with the fleet, and ready for use. Production continuing at General Mills on large scale. Most details still highly classified. Carried by a/c and helicopter. LULU augments BETTY, first nuclear depth charge, and will ultimately replace it.

MACE TM-76 AF

Type: SS prime: Martin
guide: AC Spark/Goodyear
power: Allison (J33-A-41)
★ \$63 million on MACE expected '61.

MAULER Army

Type: SA prime: Convair
power: Grand Central guide: Raytheon
★ Anti-missile missile for field use. Truck mounted. Expect to double appropriation FY '62 from \$25 million in FY '61 to \$50 million FY '62. Propulsion grant to Grand Central.

MINUTEMAN SM-80 AF

Type: ICBM
prime: Boeing guide: Autonetics
power: Thiokol/Aerojet/Hercules Powder
range: 6300 mi. nosecone: Avco
★ FY '61 funding \$291.2 million. Expect less FY '62. Surveys underway for MINUTEMAN site near Ellsworth AFB, S. D. Hard MINUTEMAN squadrons have an apx price tag of \$60 million per copy.

MISSILE A Army

Type: SS
prime: GE range: 70 mi.
★ MISSILE A, or AUTO-MET, as it is referred to, has been combined with MISSILE B. Apx 50 of the combined missiles will be produced in 1962.

MISSILE B Army

Type: SS
No contracts range: 10-20 mi.
★ Funded beginning FY '62 expected \$50 million, but may be downgraded because of MISSILE A and B combine.

MISSILE C Army

Type: SS
No contracts range: 70-90 mi.
★ Data expects \$30 million funding FY '62.

MISSILE D Army

Type: SS
No contracts range: Over 500 mi.
★ Early dvlpmt in house, with no sizeable funding FY '61.

MUSCLEMAN AF

Type: ICBM
prime: No contracts
★ Sometimes called PROJECT SMALL. Requirements for this missile not released as yet, but expected to be smaller MINUTEMAN, with more powerful punch, greater range.

NIKE-AJAX SAM-A-7 Army

Type: SA
prime: Western Electric
guide: Western Electric
power: Hercules Powder
speed: Mach 2.5 range: 30 mi.

Work underway on conversion of 15 NIKE-AJAX sites to NIKE-HERCULES, protecting metro areas in U.S.

NIKE-HERCULES SAM-A-25 Army

Type: SA
prime: Western Electric
guide: Western Electric
power: Hercules/Thiokol
speed: Mach 3.2 range: over 85 mi.

★ Data predicts drop in funding FY '62 to apx \$90 million.

NIKE-ZEUS XSAM-A-25C Army

Type: SA
prime: Western Electric
guide: Bell Telephone
power: Grand Central Rocket/Thiokol
range: 200 mi.

★ FY '61 funding \$287 million; expect only slight increase FY '62. Possible release of frozen funds for preliminary production—\$137 million, with new administration. New tactical configuration, with fins forward rather than in the rear, proven successful.

PERSHING Army

Type: SS prime: Martin
guide: Bendix power: Thiokol
range: 300 mi. (1000 mi.)

★ FY '60 funding \$131.6 million. FY '62 funding apx \$250 million. Latest \$4+ million contract to Bulova Labs for continued R&D on warhead section.

POLARIS FBM Navy

Type: US-SS prime: Lockheed
guide: GE power: Aerojet
range: 1400 and 1750 mi.

★ Dvlpmt on longer-range (2500 mi) POLARIS now firm with \$181 million contract to Lockheed. Flight tests on new 1500 mi range POLARIS underway at Cape Canaveral.

QUAIL GAM-72 AF

Type: AS-ECM prime: McDonnell
guide: Radio command/Summers
power: GE (J85) range: 200 mi.

Air-launched diversionary missile of extreme sophistication and complexity is valuable aid in protection of SAC bombers.

RAVEN XASM-9 Navy

Type: AS
No contracts announced.
range: 500 mi.

Proposed air-to-surface missile now under study. Project appears to be lagging.

REDEYE Army/USMC

Type: SA prime: Convair
guide: Convair
power: Atlantic Research

★ Lightweight (18 lb.) infra-red guided bazooka-type missile. Army has high hopes for this relatively inexpensive and effective, easily-carried guided missile that can be fired from a soldier's shoulder, giving him better

anti-aircraft capability than ever before. Unit cost of REDEYE, when in production, will be apx \$1500. FY '61 funding \$7 million, FY '62 funding apx \$12 million.

REDSTONE SSM-A-14 Army

Type: SS power: Rocketdyne
prime: Chrysler speed: Mach 5
guide: Sperry Rand range: 250 mi.
★ FY '61 funding \$20 million. Decrease in funding FY '62.

SERGEANT SSM-A-27 Army

Type: SS
prime: Sperry power: Thiokol
guide: Sperry range: 85 mi.
★ FY '61 funding \$75 million; substantial increase FY '62.

SHILLELAGH Army

Type: SS prime: Aeronutronics
guide: Aeronutronics
power: Picatinny Arsenal
range: 8 mi.

Gyro for complex guidance system now being dvlpd by Telecomputing. Ideal for close-in support of troops.

SIDEWINDER AAM-N-7 Navy GAR-8 AF

Type: AA
prime: Philco guide: Philco/GE
power: Hercules Powder
range: 7 mi.

★ Extremely popular infra-red homing missile is simple and rugged. SIDEWINDER-IC is advanced model with higher speed and greater range. Advanced model has interchangeable warhead—one with infrared guidance (IRA), the other with radar guidance (SARAH). All weather type SIDEWINDER, to be used on PHANTOM-2 fighter, now in R&D. Even more advanced model "Super Side-winder" under dvlpmt, with slight funding FY '62.

SKYBOLT GAM-87A AF

Type: AS
prime: Douglas power: Aerojet
guide: Nortronics nosecone: GE
range: 1000 mi., a/c launch

★ Static tests by Aerojet so far successful. \$50 million to be spent FY '61 on R&D. Possible increase to allow configuration changes. Large increase in funding FY '62. Proposals made for small-size ALBM, with 1/2 range of SKYBOLT. Use with B-58.

SLAM AF

Type: SS
★ Supersonic Low Altitude Missile, big Brother of CLAM. Study contracts out to four companies, including Chance Vought.

SLIM JOHN XM50 Army

Type: SS prime: Douglas
guide: stabilizing fins
power: Hercules Powder/Thiokol
range: apx. 20 mi.

Advanced model of HONEST JOHN minus heavy nose. XM-50 trims 1/2 ton from HONEST JOHN M-31 model. 3 ft shorter. Explosive force is increased, as is range.

PROJECT SMALL AF

Type: ICBM

★ See MUSCLEMAN.

SPARROW III AAM-N-6, 6A, 6B Navy

Type: AA guide: Raytheon
prime: Raytheon range: 5-8 mi.
power: Thiokol/Aerojet

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

MILITARY MISSILES, NOVEMBER 1960

★ New information this month

Longer-range SPARROW 6-B, now in dvlpmnt, will have advanced power-plant, as rumored in last issue. Competition hot between Aerojet (solid & pre-pack liquid) and Rocketdyne (solid). Decision coming late '61.

SS-10 Army

Type: SS
weight: 33 lbs. range: 0.9 mi.
prime: Nord of France

Wire guided anti-tank weapon. Operational with U. S. and NATO forces. Used by the French in Algerian battles with success.

SS-11 Army

Type: SS
prime: Nord of France
weight: 62 lbs. range: 2 mi.
★ Army strong on SS-11 now, possibly over COBRA.

SUBROC Navy

Type: SU-UU prime: Goodyear
guide: Librascope/Kearfott
power: Thiokol range: 25-50 mi.
★ FY '61 funding apx \$5 million. This complex weapons system is launched through a torpedo tube of a submarine or surface vessel. Rising, it flies from 25 to 50 miles through the air, then re-enters the water and homes on its submerged target. Key to perfection of the system is reliability and range of built-in sonar equipment. Work is now continuing along that line.

TALOS SAM-N-6 Navy

Type: SA guide: Bendix/AVCO
prime: Bendix power: McDonnell
range: 75+ mi. speed: Mach 2.5
★ Apx \$20 million funding FY '61. Unique in its integral ramjet body, TALOS is now operational aboard the guided missile cruiser GALVESTON.

TARTAR Navy

Type: SA prime: Convair
guide: Sperry
power: Aerojet/Rocketdyne
speed: Mach 2.0 range: 10+ mi.
★ Production increased on TARTAR missile. Latest contracts; \$41½ million to Convair for TARTAR production, and \$2 million to GE for fire control directors. Will be primary armament of guided missile destroyers; secondary armament of guided missile cruisers. Improved TARTAR now in dvlpmnt stage. Will have improved parts and higher energy solid propellant fuel. FY '61 funding estimated \$50 million. Addtl funds to Convair for guidance in re: contract.

TERRIER SAM-N-7 Navy

Type: SA prime: Convair
guide: Sperry
power: Allegheny/Rocketdyne
speed: Mach 2.5 range: Apx. 12 mi.
★ Beam riding missile for use on larger surface ships. Operational with the fleet. Advanced TERRIER missiles now in increased production. Latest award \$20.4 million to North Ord for production of launch systems, and contract to Convair for guidance units.

THOR SM-75 AF-NASA

Type: IRBM prime: Douglas
guide: AC Spark Plug
nosecone: GE
power: North American range: 1500 mi.
★ Proposal of improved version THORAD may extend life-line of THOR project past '62.

The THORAD concept includes launch boosters on side of missile, dropping off after burnout.

TITAN SM-68B SM-68 AF

Type: ICBM prime: Martin
guide: Bell/Am. Bosch/Sperry Rand
power: Aerojet nosecone: AVCO
range: 5500 mi./9775 mi. (Titan 2)

AF funding for TITAN in FY '61—\$409.4 million.

TYPHON Navy

Type: SA-SS range: 20 and 100 mi.
★ Now in flight-test stage of dvlpmnt, this antimissile system is highly classified. Expected operational 1963.

WAGTAIL AF

Type: AS prime: Minn.-Honey
guide: Minn.-Honeywell
power: not releasable

★ This remarkable rocket will be able to follow contours of terrain and change speed in flight. WAGTAIL has been successfully sled-tested. Sched operational 1962.

WEAPON ALPHA Navy

Type: SU No contracts released
BuOrd "in-house"

Operational with the fleet, WEAPON ALPHA is rocket-powered depth charge now installed on destroyer escorts and class 931 frigates. The device will be replaced by semi long-range rocket-launched homing torpedoes, and is therefore already approaching obsolescence.

WHITE LANCE GAM-83A GAM-83B AF

Type: AS prime: Martin
guide: radio command/Republic
power: Thiokol

Larger model of Navy BULLPUP for AF use. Advanced version GAM-83B can carry nuclear punch. AF now dvlpmnt launcher to integrate BULLPUP into F-105 Thunderchief inventory of weapons. FY '60 funding \$6½ million.

WILLOW Army

Type: SS prime: Chrysler
All information still highly classified.

ZUNI Navy

Type: AS-AA
range: 5 mi.

★ Advanced ZUNI in dvlpmnt sched to be operational 1963. Operational with carrier based a/c, present ZUNI is a folding fin all-weather unguided rocket carried in multiple units. The Douglas AD a/c carry 48 ZUNIs below their wings on combat missions. The weapon is effective against pill-boxes, tanks, gun emplacements and small ships.

SPACE PROJECTS

PROJECT ADVENT Army

Project Officer
General William M. Thames, Jr., Director
Project Advent Management Agency (PAMA)
Fort Monmouth, N. J.
Type: Advanced Communications Satellite
prime: Bendix (Communications)
Obj: Designed to be a global real-time repeater.

ADVENT has \$174 million for R&D. Basically same as PROJECT DECREE except for accelerated pace. Polar-orbiting satellites, such

as PROJECT STEER and PROJECT TACKLE, may grow as off-shoots of PROJECT ADVENT.

AEROS NASA

Type: Meteorological Satellite
Obj: Designed to take pix of cloud formations and frontal systems.

Successor to NIMBUS, will be a 24 hour stationary weather satellite.

AGENA AF/NASA

Type: Liquid-fueled Upper Stage
prime: Lockheed
Obj: AGENA will be useable as a second stage to ATLAS and THOR missiles.

It incorporates a Bell rocket engine similar to that used previously in the HUSTLER vehicle. The AGENA upper stage is used in DISCOVERER, MIDAS and other projects. AGENA and SATURN are part of PROJECT TRIBE.

AGENA B AF/NASA

Type: Liquid Fuel Upper Stage
prime: Lockheed
Obj: Deep Space Missions

★ ATLAS-AGENA B moon shot sched for mid '61. It will TV moon and land instrument capsule to tell NASA about the makeup of the moon. NASA will buy 16 Agena-B launch vehicles for \$50 million. THOR-AGENA B launch 26 Oct a failure for DISCOVERER 16. This was first try with AGENA B atop a booster, and it failed to separate.

APOLLO NASA

Type: Manned Spacecraft
prime: No contracts announced
Obj: Earth- or lunar-orbiting space lab for three men

★ 3 awards of \$250,000 each have been made to Martin, Convair and GE. 14 bids were rcvd. The feasibility studies are due April '61. Mission flights of APOLLO are sched in 1965-1970 period.

ATLAS-ABLE NASA

Type: Large Booster
prime: Convair/Space Tech Labs
guide: GE/Burroughs/Am. Bosch
power: Rocketdyne/Aerojet
Obj: Designed to orbit 200-lb. satellite around moon.

2 ATLAS-ABLE shots are sched for late '60. Both aimed at lunar orbit. Project going well, with much interest in this combo.

BLUE SCOUT (609A) AF

Type: Hyper-Environmental Test System
prime: Aeronutronic
guide: Minn.-Honeywell
power: Aerojet/Allegany/Thiokol
Obj: Testing equipment and techniques; collecting scientific data at space equivalent altitudes in support of ARDC mission of advancing the state-of-the-art components, subsystems, and specialized methods related to future ballistic missile and military space systems.

Name has been changed from 609A to BLUE SCOUT. 4 stage model called SCOUT; 3 stage version called BLUE SCOUT I. With 4th stage guidance named BLUE SCOUT 2. BLUE SCOUT Jr is still another version, without guidance. First test flight of Jr. was firing success, but telemetry failure dampened spirits.

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

SPACE PROJECTS, NOVEMBER 1960

★ New information this month

CALEB Navy

Type: Astronautics Vehicle
prime: In House

★ Instrumented test firings being carried out from F4D and F4H fighter a/c. Planned to launch small payloads into orbit. CALEB is planned as "a vehicle of potential operational use to the Fleet for recon, meteorological and other military missions."

CENTAUR NASA

Type: Soft-Land Moon Vehicle
prime: Convair
guide: Minn.-Honeywell
power: P&W/JPL

1st stage: Hi-energy Atlas
2nd stage: 2 P&W liquid hydrogen engines
3rd stage: JPL 6000 lb. thrust liquid engine
Obj: Designed to land 730-lb. payload on moon in soft landing, for heavy earth satellites and probes to Mars and Venus.

★ San Diego, static tests nearly completed. Full firing due early '61.

COURIER Army

Type: Communications Satellite
prime: Philco

Obj: Designed to be delayed repeater satellite, part of PROJECT NOTUS.

★ COURIER has \$23 million funding. Communications satellite in orbit after 4 Oct launch.

PROJECT DISCOVERER AF

Type: Stabilized Satellites

Obj: Systems evaluation to include launching technique, propulsion, communications, orbital performance, advanced engineering tests and recovery techniques.

★ DISCOVERER 16 attempt a failure after failure of second stage to separate. AGENA B vehicle was used. First time for AGENA B atop a booster. DISCOVERER 17 shot of 12 November successful. Is fore runner of "Peeping Tom" satellites, such as SAMOS.

DYNA-SOAR I AF/NASA

Type: Boost-Glide Orbiting Vehicle
prime: Boeing (for Glider)
Martin (for Booster)

Obj: Manned glider for orbit and re-entry

★ FY '61 budget: \$58 million. AF has also released FY '59 and '60 funds totalling \$29.7 million. Total cost expected to be over \$1 billion. Aerojet converting TITAN engines for task of DYNA-SOAR boost in initial flights.

PROJECT ECHO NASA

Type: Inflatable Satellites
Obj: Global communications experiment.

Continued use of ECHO 1 satellite for radio communications. ECHO 2 launch to follow.

PROJECT FIREFLY ARPA

Type: Gas Research
Obj: Elimination of missile gas trails

★ Studies to discover chemical properties of missile trails. These missile gas trails provide an excellent means for enemy detection of our missiles. PROJECT FIREFLY completed with October test, releasing powdered chemicals at alts of 35 to 130 miles. Test employed NIKE-CAJUN, HONEST JOHN-NIKE, and 33 sounding rockets. Tests labelled a success.

JUNO II NASA

Type: Large Booster prime: Chrysler
guide: Ford Instrument
power: Rocketdyne/JPL
Obj: Attempts to put small payloads in space.

Project to be completed, 1960.

PROJECT LORRAINE ARPA

Type: Basic research in energy conversion
Obj: Designed to stimulate the flow of fundamental knowledge of the conversion of energy into useful power sources and to support selected research in this field.

Through this project ARPA will extend early research, such as power for satellite programs, and review all ideas that have a potential in the conversion of chemical, nuclear and solar energy into power.

MARINER NASA

Type: Space Vehicle
Obj: Planetary missions

Post MERCURY project, designed for planetary voyages. May weigh close to 50,000 lbs.

MERCURY NASA

Type: Manned Satellite

prime: McDonnell

Obj: Will attempt to put man in brief orbit, then parachute him in capsule safely to earth.

power: ATLAS (Rocketdyne)

★ MERCURY Tracking and Ground Instrumentation Station (TAGIS) on Canton Island, South Pacific completed.

MIDAS WS 117L AF

Type: Early Warning Satellite

prime: Lockheed

Obj: Infrared sensing of enemy ICBM launchings.

AF has \$41 million for MIDAS in FY '61. MIDAS would double our warning time of enemy ICBM launch, detecting heat from exhaust of missile as it is launched. ATLAS-AGENA vehicle will be used.

NERV NASA

Type: Nuclear Emulsion Recovery Vehicle

prime: GE

Obj: Measurements of Van Allen Radiation belts

★ Further NERV shots expected soon, after success of 19 Sept.

NIMBUS NASA

Type: Meteorological Satellite

Obj: Designed to take TV pix of cloud formations and frontal systems. Will be in polar orbit, earth oriented.

Total of 10 satellites will be launched through 1965—one every 6 months. THOR AGENA-B vehicles will be used. Improved components will be used as available. Invitations to bid will be issued soon.

NOVA NASA

Type: Large Booster

prime: Rocketdyne

power: Rocketdyne

Obj: Will build 6-12 million lb. thrust booster for Outer Space

Rocketdyne's 1.5 million lb. thrust engine is heart of this system. NOVA will be cluster of 4-6 such engines. Engine in early dvlpmnt now, sched for operation after 1965.

ORION AF

Type: Rocket propelled by nuclear pulses
prime: General Atomic
Obj: Nuclear powered Outer Space Vehicle
In basic testing stage. Apx \$21/2 million spent to date.

PONTUS ARPA

Type: Material Research

prime: no contracts announced

Obj: Experimentation and dvlpmnt of better structural and power conversion materials for military requirements in surface, air and missile programs.

Contracts awarded to Cornell, Penn, Northwestern Universities. Total funding through 1963; \$13.9 million, to establish, equip and operate labs. Additional labs may be set up at other universities at a later date.

PRINCIPIA ARPA

Type: Solid Propellants

Obj: Dvlping new solid propellants with 10-20 percent higher specific impulses.

Project studies to be carried out by universities. Expect info on completed contract negotiations soon.

PROJECT 609A AF

See BLUE SCOUT.

PROSPECTOR NASA

Type: Lunar Probe

Obj: Soft landing of instruments on moon

★ JPL will select prime in spring of '61.

PROJECT RANGER NASA

Type: Lunar Probe

prime: J P L

power: NA/Hercules

payload: Aeronutronic

Obj: Hard landing of instruments on moon

★ Preliminary design studies completed at Aeronutronic for retrorocket. Allegany has award to build rocket. Estimated cost of RANGER is \$50 million for the 5 shot series.

REBOUND NASA

Type: Communications Satellite Network

Obj: Establish series of passive satellites for global communications.

These multiple passive satellites will be much like ECHO, succeeding that project.

PROJECT ROVER AEC/NASA

Type: Nuclear rocket

Obj: Prove feasibility of nuclear rocket

★ Nuclear Propulsion Office (NPO), recently formed, is now responsible for ROVER program guidance. A joint office formed by AEC and NASA personnel. Will see nuclear powerplant by '63, rocket by '66. Requests for proposals out for R&D on nuclear rocket engine.

SAMOS WS 117L AF

Type: Reconnaissance Satellite

prime: Lockheed Obj: TV Satellite

Special SAMOS office has been est in Pentagon as project overseer. Total FY '61 funding: \$283.7 million. Next SAMOS attempt expected momentarily after 11 Oct failure.

SATURN NASA

Type: Large Booster prime: Convair

power: Pratt & Whitney/Rocketdyne

Obj: Clustered 1.5 million lb. thrust booster for Outer Space Vehicles.

★ No award yet for automatic ckout system.

DATALOG OF MISSILE, SPACE AND DETECTION PROJECTS

SPACE PROJECTS, NOVEMBER 1960

★ New information this month

5

SCOUT NASA

Type: Four-stage Satellite Launch Vehicle
prime: Chance Vought
guide: Minn.-Honeywell
power: Aerojet/Allegany/Thiokol
Obj: Designed to place 200-300 lb. satellites in orbit.

First stage: Modified POLARIS
Second stage: Modified SERGEANT
Third stage: Antares
Fourth stage: standard VANGUARD 3rd stage.

See BLUE SCOUT for AF version. Launch of 4 Oct was successful. This was second successful flight for all-solid rocket SCOUT.

SHEPARD ARPA

Type: Tracking System
Obj: Tracking and data reduction

System will detect and track satellites from Space Surveillance Control Center.

SUNRISE ARPA

PROJECT SUNRISE will make studies of advanced military weapons with special concentration on space delivery.

SURVEYOR NASA

Type: Lunar Probe
Obj: Soft landing of instruments on moon. Major piece of equipment will sample lunar crust, drilling as deep as 6 ft.

★ Expected to be going strong by '63, pending success of RANGER. Contracts have been let for preliminary design of spacecraft totaling \$500,000. JPL will award contract, selecting prime in Jan or Feb '61. \$150,000 in contracts have been let for design of lunar drill.

TATTLE TALE AF

Type: Communications System
Obj: Determine the feasibility of using rockets to communicate over distances of several thousand miles in the event that enemy action destroys ground networks.

Tests underway at WADD, with a successful shot and transmission 31 Aug.

THOR-ABLE NASA

Type: Large Booster
prime: Douglas/Space Tech Labs
Obj: Designed for deep space probes of lighter payloads than ATLAS-ABLE.
guide: GE
power: Rocketdyne/Aerojet

THOR-ABLE appeared to function OK in PIONEER 6 launch. Cause of failure not yet determined.

THOR-DELTA NASA

Type: Satellite Launching Vehicle
prime: Douglas guide: ITT
power: Aerojet/Allegany
Obj: Designed to put small satellites (50-80 lbs.) into orbit around moon.

Successfully used as launch vehicle for TIROS 2 meteorological satellite.

TIROS 2 NASA

Type: Meteorological Satellite
prime: RCA
Obj: Provide info on nature of weather

TIROS 2 shot expected soon. Watch for full report following launch. 21 nations, including USSR, have been invited to participate in TIROS 2 weather study.

PROJECT TRANSIT Navy

Type: Navigation Satellite
prime: APL/JHU
Obj: Earth satellite system to provide accurate all-weather navigation for surface ships, a/c, and subs.

★ TRANSIT 3-A sched to be launched November 29 from Cape Canaveral. Will be another piggy-back shot. Two R&D TRANSIT satellites are presently in orbit: TRANSIT 1 launched 13 April 1960 and TRANSIT 2 launched 22 June 1960.

PROJECT TRIBE ARPA

Obj: Outer Space Vehicles
PROJECT TRIBE is a research, experimentation and systems development designed to obtain at the earliest practical date a continuing family of military space vehicles capable of satisfying the needs for space missions as may be determined by Secretary of Defense from time to time. Guidance, stabilization and control components necessary to satisfactory performance of the vehicles shall be included in the scope of this assignment. SATURN and AGENA are part of Project TRIBE.

VOYAGER NASA

Type: Advanced Spacecraft
Obj: Various planetary missions
More advanced craft than the planned MARINER vehicle.

X-15 AF/Navy/NASA

Type: Rocket-Powered Manned Aircraft
prime: North American power: Thiokol
Obj: Designed to take man in controllable a/c to fringes of outer space—250,000 ft. altitude, at speed of Mach 5 (better than 3600 mph.).

★ FY '61 funding \$6 million for advanced development. Flight attempt of 10 November, with new NA XLR-99 engine, scrubbed when system did not kick out. Next try momentarily.

DETECTION PROJECTS

BALLISTIC MISSILE DEFENSE BMEWS AF

Type: Ballistic Missile Defense Radar System
prime: RCA
Obj: Ballistic Missile Early Warning System designed for 40-minute notice of approaching enemy ICBMs.

★ R&D cost of BMEWS—\$700 million. Production and construction costs will total \$180 million. Estimated total cost upon completion is \$1 billion. BMEWS Thule and SAC command post at Offutt AFB operational.

PROJECT DEFENDER ARPA

Obj: Ballistic Missile Defense
Latest addition to PROJECT DEFENDER is PROJECT PRESS, (Pacific Range Electro-Magnetic Signature Study). The program has a classified radar system of advanced design and other sensing devices. PRESS is intended to investigate missile discrimination and identification.

ESAR ARPA

Type: Advanced Warning Radar
prime: Bendix
Obj: Electronically Steerable Array Radar is designed for ground installation to warn of approaching enemy missiles. Multitude of individual cells will give more flexibility than other systems of steerable radar. Part of PROJECT DEFENDER.

GLIPAR ARPA

Type: Study Group for Missile Defense
Obj: Designed to work on future ICBM defense. Called upon by DEFENDER and LONGSIGHT.

PROJECT LONGSIGHT ARPA

Type: Study System in Missile/Space Field
Obj: Recommendations as to projects which should be initiated to satisfy future military requirements. GLIPAR (Guide Line Identification Program for Anti-Missile Research) which was initiated. GLIPAR is now used by both LONGSIGHT and DEFENDER. LONGSIGHT more advanced than DEFENDER.

PINCUSHION ARPA

Type: Advanced Radar prime: Raytheon
Obj: PINCUSHION is a many-frequency radar installation to be located on Kwajalein in the Marshall Islands, initially, as an early warning radar, more variable than TRADEX or ESAR.

SAGE AF

Type: Semiautomatic Ground Environment System
prime: IBM
Obj: Provides a push-button missile defense utilizing a search radar system to locate enemy aircraft and destroy them with BOMARC missiles.

★ Latest contract: to Electronic Communications, Inc, \$2 million for F-106 equipment and Airborne Long Range Input (ALRI).

PROJECT SPASUR ARPA

Type: Space Surveillance System
prime: NRL/Bendix
Obj: To produce a system capable of detecting, identifying, and determining orbits of non-radiating objects in space.

The feasibility and operational capability of SPASUR has been demonstrated. A need now exists to increase the detection range and data handling capability of the system.

PROJECT TEEPEE Navy

Type: Long Range, High Frequency Radar
Obj: Provide ICBM detection

TRADEX Army

Type: Advanced Radar
prime: RCA
Obj: TRADEX is a modification of the radar types designed for BMEWS. It has better range.

Latest contract, \$1½ million to RCA for R&D. The award came after transfer of TRADEX from ARPA to Army.

VELA ARPA

Obj: Research, experimentation and systems development related to the nuclear test moratorium.
VELA Uniform: R&D on sub-surface nuclear explosion detection. Funding for FY '60: \$8,535,000.
VELA Sierra: R&D on ground detection of nuclear explosions in space. Funding for FY '60: \$1,050,000.
VELA Hotel: R&D on satellite detection of nuclear explosions in space. Funding for FY '60: \$300,000.

Seismic research station at Fort Sill, Okla., in the Wichita Mts, has been completed. Will follow mission set down by recent Conference of Experts, in Geneva; to "Study the possibility of detecting violation of a possible agreement in the suspension of nuclear tests".

Dealing with People in Government



WHO ARE THESE people that Industry finds that it must negotiate with in the conduct of Government Business? What manner of people are they? What makes them tick? As times passes, continuity of business effort leads one to the amazing conclusion that these people are much like ourselves, have basically the same motivations and differ only slightly in their outlook on life.

BUREAUCRACY

One difference that most of these people have is that they accent a different view on what the individual must do to seek success in life and, perhaps, what one must do to attain that success. The peculiarities of working in an area of rules, regulations and policy guides induces the aura of bureaucracy. The reception of this bureaucracy is not uniform throughout industry.

SECURITY

The people representing the Government in its dealings with industry come from the same walks of life as their opposites. They have the same desires for the good things of life in our democratic way of living. We must assume that the security provided in the military or civil service contracts for their services has been a major factor in their choice of the Government as their boss. We must remember also that in their life in the Government they are in daily association with a group concentration of people whose loyalty to the United States, to the best principles of our Democracy and to the continued supremacy of our nation is without peer.

Their efforts are bent toward obtaining the best tools that can be purchased for their particular activi-

ty at the least cost, while yet affording industry a reasonable profit. Their success in this field is the measure of how efficient they are in the interest of Mr. John Taxpayer. Need one ask, "Who is Mr. John Taxpayer?"

In accommodating themselves to the life of government employment the Government employees must forego opportunities for personal gain that are open to those in industry. They have chosen the path of security rather than that of material gain. One may not establish his career within the frame of government and enjoy the full fruits of his efforts in a financial light. This does not mean, of course, that everyone on the outside of government life is guaranteed the full fruits of his efforts. However, his chances for material gain in shorter time is far greater, the opportunity is always there. Denying themselves this opportunity to compete for financial success leaves a hole in the government employee's life which must be filled by a motivation for equal or greater good. The replacing motivation is the competition for advancement accented by recognition of their efforts and their demonstrated ability.

RETIRING ON THE JOB

There are a few who use the government system and its security for "retiring" on the job. There are, proportionately, as many who are guilty of this in industry. It would be unwise to consider such persons as the average or that one could generalize that it is a pattern. The man who "retires" on the job is found out eventually, whether in government or industry. Unless he carries his share of the workload to the advantage of his employer he may expect to be eliminated by the

machinery which is available for this purpose.

CONTRACTOR RELATIONS

In dealing with people in the Government Complex one has a greater chance for success if an open, honest, courteous and understanding approach is made. The average person with whom you will come in contact during the conduct of government business, no matter at what level of responsibility, desires to meet you at least halfway and to give assistance in "know-how." His job is to get his assigned project underway with the least delay, to negotiate for the lowest price consistent with the adequacy and the quality of the product in meeting the specifications. Further, he is interested in insuring that the product or service is provided where, when and as required by his activity. *He is not prejudiced against you.* He is impressed with the vital necessity of doing his utmost to get our country in its strongest position.

He is not prejudiced for you. You must come up with a lower price, a better mouse trap, a new idea, or a saving in size, weight, quality or time to take the prize. He needs your engineering capabilities, your experience and your production capacity. He cannot afford to let a contract to a firm that continually misses keeping its schedule of deliveries for there are plenty of other companies whose abilities are proven and whose loss of the contract may have been due only to the price battle. Who knows how disastrous late deliveries may be to our nation? The government buyer will listen to anyone with an idea which is believed to be an improvement in the state of the art.

INFLUENCE AND GRATUITIES

He could care less about the interests of those who come in blustering with alleged power. Should an individual be susceptible to illegal remuneration, his days are numbered. He will get tagged and the penalty makes it not worth the candle. In other words, learn the rules, analyze the situation, and *play the game straight!*

Treat the people of the Government Complex in honor and with friendly consideration and you will enjoy appropriate consideration at every level.

by R/Adm. R. W. D. Woods, USN (Ret.)

for

the
a
an
er-
he
will
uct
ter
le-
ray
w-
ed
le-
ice
nd
et-
he
the
led
his
ed
ith
ut-
its

ou.
ver
ew
ht,
He
es,
ic-
to
n-
le
of
re
n-
to
ow
to
er
ea
e-

n-
r-
an
al
n-
he
he
he
nd

n-
th
ill
at
■

for

the
a
an
er-
he
vili
oct
er
e-
ay
w-
ed
e-
ce
d
t-
e
e
d
s
d
n
s

DATAGRAM

AIR/SPACE

AF MANAGEMENT PRACTICES UNDER STUDY

Martin Co — AF TITAN program selected for initial study to determine if present mgmt techniques are sufficient to keep pace with weapons system technology. Production procedures and cost control methods are primary targets of study. ///DOD/

CABINET STATUS FOR FAA?

Feelings are running high in the capitol to make FAA a cabinet post. Strong rumors are making the rounds of the upper echelons that this will be done during the Kennedy Administration. ///DATA/

W2F-1 ACCEPTED BY NAVY

The Grumman HAWKEYE a/c has been accepted for fleet use by the Navy. This carrier-based early-warning and intercept control twin engine a/c is designed to protect task forces from airborne attack by detailed and semi-automated reconnaissance flights from the carrier. ///DOD/

FORWARD SCATTER SYSTEM FOR FAA

High frequency communications employing the forward scatter principle are being tested by FAA. If tests are successful, FAA believes that good communications can be carried out 98% of the time between airports and a/c. Pan Am is presently using this method of communications on a limited basis, and reports it to be highly successful. ///FAA/

AVIATION FUEL FILTER

A portable filter-separator for removal of water and solid contaminants from aviation fuel is under dvlpmnt by the Army. It is designed for use in the field and has a capacity of 20 gallons per minute. Procurement of 25 units has been authorized for field testing and operational evaluation. ///Army/

TRI-SERVICE VTOL RESEARCH

A joint dvlpmnt program has been initiated directed toward dvlpng a prototype of an operational vertical take-off and landing (VTOL) transport a/c for operational suitability testing. First step in the program will be the initiation of a design competition based on type specs to be dvlpd by the Navy. The Navy has been designated to conduct this joint dvlpmnt program which will be funded over a four year period. ///DOD/

ELECTRONICS

MISSILE ELECTRONIC UNIT

Transistorized electrical unit to supply power for elec circuits in missiles has been dvlpd by Bendix. The inverter is claimed to be $\frac{1}{2}$ size of present types and more efficient. ///Bendix/

LONG-RANGE LIGHTING

A breakthrough in long-range illumination is claimed by the Duro-Test Corp. Their new Xenon high pressure, high brightness bulb can be used to project light up to 50 mi. Secret to the system is high concentration of 'rare gas' Xenon, at a pressure 10 times the atmospheric pressure of xenon. ///Duro-Test/

PORTABLE GROUND RADAR

Infantry radar system is helicopter transported to a point overlooking enemy terrain. The unit sweeps a 25 mi semi-circle, plotting movement of enemy targets and relaying info to hdqtrs. Especially useful in determining whether enemy is building up or withdrawing. ///Infantry/

RAPID DATA TRANSMISSION

New unit from Digitronics permits transmission of digital data over AT&T Bell System facilities. In conjunction with the Bell Telephone Data-Phone, the Dial-o-verter can transmit at the rate of 1200 bits per second. A major breakthrough in data processing. ///Digitronics/

ARTILLERY COMPUTER

New fire support system providing increased accuracy for artillery was recently demonstrated to the US Army Artillery and Missile School. The system employs a computer which can adjust for variables such as velocity errors, powder temperature, etc. System is sched for delivery late 1961. ///Ramo-Wool/

CREEPIE - PEEPIE

Now on the market is an attache case by Minox, equipped with concealed tape recorder and minox camera; also concealed. The case is described as ideal for both spy work and use as a travelling secretary. Price tag: \$514. ///Minox/

ANTI-SUB WARFARE

ASW TRACKER A/C TO NAVY

Grumman a/c is producing additional S2F-3 TRACKER aircraft with improved Curtiss-Wright R-1820 engines. The order came recently with a \$35.7 million contract from the Navy. The new TRACKER has improved ASW electronics and armament components for search and attack. ///Navy/

PROJECT SURIC

Navy is conducting a study to reduce crew requirements of surface ships by turning over many control functions to automated machinery. PROJECT SURIC — Surface Ship Integrated Control — is due to be completed within a year. Results are to be incorporated in a destroyer escort, a ship type which will continue to be of use in ASW. The Navy hopes to realize cost and space savings by making use of data processing and automation equipment. PROJECT SURIC is being carried out by the Office of Naval Research; Sperry Rand; and Gibbs and Cox, Inc., Naval architects. ///ONR/

DEADLINE DATA

ASTIA AUTOMATION

Armed Services Technical Info Agency goes into the second phase of its automation program with the inclusion of the magnetic tape process with their Univac 90 computer. The change from manual to automatic operations will enable ASTIA to speed its services so that about 80% of requests for scientific documents from R&D contractors can be filled in 3 days. ///DATA/

ANTIRADIATION PILL

Research now being conducted by Army scientists to counter the harmful effects of exposure to radioactivity is expected to produce a usable antiradiation pill within the next 2 years. The pill is expected to protect an individual from the immediate effects of radiation as well as long-term genetic damage. ///Military/
Review/

PEOPLE IN GLASS HOUSES.....

Glass fibers are being used to produce concrete structural elements. Dvlpd by the US Army Engineer R&D Labs, Ft Belvoir, the method is known to produce lightweight, corrosion resistant concrete. The material will be used where absence of magnetic field and electrical resistance are important factors. ///Army/

PERSONNEL CARRIER

The lightweight, air-droppable M113 is sched for initial delivery to the Army in Feb'61. The aluminum armored vehicle, successor to the M59 carries a full squad of infantrymen over nearly any type of terrain and swims rivers and inland waterways. It is capable of climbing 60% slopes. The M113 can be converted to carry rocket launchers, antitank missiles, mortars, cargo or fire direction equipment. It can also serve as an ambulance, communications or command post vehicle. Range is 200 miles and cruise speed is 25 mph. ///Infantry/

PISTOL PACKING PRESS

Navy's NOL has found a new and unique use for the 16-inch naval gun, now all but obsolete since the dvlpmt of the long-range nuclear warhead missile. The breech end of one of these guns has been converted into a press for safely and cheaply compressing ultra-sensitive powdered explosives into high density molded charges for research. ///NOL/

MORE \$\$ FOR PROJECT BUMBLEBEE

Navy has awarded a \$26.8 million contract for continued research and dvlpmt of guided missiles to APL. The BUMBLEBEE project was initiated in 1944, and since then TERRIER, TARTAR, TALOS and TYPHON surface to air guided missiles have directly resulted from the project. Part of the funding will go into R&D of the POLARIS fleet ballistic missile. Mission of the program is to dvlp improved air defense systems for ships of the United States. ///DOD/

Company Needs and Contacts

An explanation of this feature:

In the interest of having more manufacturers, suppliers and individuals share in the American Defense Effort, DATA magazine offers free advertising space to our prime contractor paid subscribers to tell their materiel and personnel needs to subsystem producers, subcontractors, jobbers, military personnel looking for civilian employment with Government-contracting industries, and personnel employed in other companies who might make better use of their abilities in the common defense.

There is no charge for these listings to paid subscribers in major companies. Space is allocated on a first-come first-served basis. A new listing must be submitted by the prime contractor each month as old listings will not be carried over.

— Murray Smith, Publisher DATA

• BENDIX CORPORATION

Bendix Radio Division
E. Joppa Road
Baltimore 4, Maryland
Phone: VALley 3-2200

Personnel Needs Contact

- K. D. Claiborn (1)
- C. G. McMullen (2)
- W. R. Richardson (3)
- 1. Microwave Engineer
- 2. Systems Engineer
- 3. Logic Designers

• EITEL-MCCULLOUGH, INC.

301 Industrial Way
San Carlos, California
Phone: LYtell 1-1451

Personnel Needs Contact

- C. K. Giesler, Personnel**
Ext. 312
- 1. Microwave Tube Sales Engineer
 - 2. Negative Grid Tube Sales Engineer
 - 3. Klystron Sales and Applications Engineer
 - 4. Tube Sales Engineer (Chicago)
 - 5. Tube Sales Engineer (New York)
 - 6. Sr. Project Engineer—Microwave Tubes

• ELECTRO-OPTICAL INSTRUMENTS, INC.

2612 E. Foothill Boulevard
Pasadena, California
Phone: MURray 1-3069

Personnel Needs Contact

- Russ Marshall, President**
 1. Kerr Cell Camera Sales Engineer

• EMERSON RESEARCH LABORATORIES, INC.

1140 East-West Highway
Silver Spring, Maryland
Phone: JUniper 8-7273

Personnel Needs Contact

- Paul G. Hendrickson,**
Industrial Relations
Ext. 222
- 1. Production Engineer—product design
 - 2. Senior Engineer—solid state in microwave devices
 - 3. Principal Engineer—circuitry

• GOODYEAR AIRCRAFT CORPORATION

Litchfield Park, Arizona
Phone: WESTport 5-9331

Personnel Needs Contact

- B. A. Watts, Personnel**
Ext. 523
- 1. Theoretical Physicist—Applied Research
 - 2. Experimental Physicist—Applied Research
 - 3. Sr. Engineer (EE, Physics)—Applied Research
 - 4. Electronic Circuit Designer—Radar
 - 5. Test Equipment Designer—Systems & Circuitry

- 6. Microwave Engineer—Antennas
- 7. Servo Engineer—Inertial Equipment
- 8. Electronic Packaging Designer
- 9. Reliability Analyst

• MATERIALS TESTING COMPANY, INC.

4932 St. Elmo Avenue
Bethesda 14, Maryland
Phone: OLiver 6-7286

Personnel Needs Contact

- Ralph Mock, VP**
 1. Rubber Chemist
 2. Supervisor, Rubber Products Plant

• THIOLKOL CHEMICAL CORPORATION

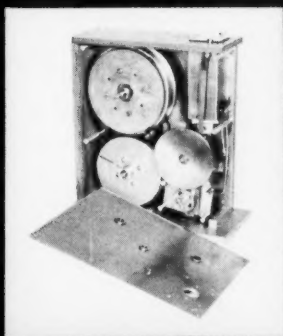
Utah Division
Brigham City, Utah
Phone: PARKway 3-5231

Personnel Needs Contact

- Boyd Baugh or**
S. L. Robinson
Mail Stop 121-A2
- 1. Mathematicians
 - 2. Statisticians
 - 3. Scientific Data Programmers
 - 4. Rocket Development Engineers
 - 5. Static Test Engineers
 - 6. Test Instrumentation Engineers
 - 7. Process Engineers
 - 8. Polymer Chemists
 - 9. Metallurgists
 - 10. Senior Instrument Buyers
 - 11. Equipment Design Engineers
 - 12. Senior Designers
 - 13. Contract Administrators
 - 14. Proposal Engineers
 - 15. Facilities Planners
 - 16. Design Engineers
 - 17. Plastics Dvlpmnt Engineers

MADE TO QUALITY THROUGHOUT THE WORLD
ADMIRAL

This...



brings this



Rugged, Reliable, Responsive ADMIRAL Hand Generator Brings Electrical Power to Underdeveloped Areas

The International Cooperation Administration had a need for a small electrical energy generator for use in underdeveloped areas throughout the world. Requirements were that it should be of sufficiently simple construction to permit assembly within any country from readily accessible materials and with unskilled labor.

The generator designed by ADMIRAL surpassed all ICA requirements. With but a half-minute of winding the machine stores enough electrical energy to

power electric lights or radios for 15 minutes, yet the generator weighs only 55 pounds and occupies a mere 17 x 15 x 5½ inches of space.

Thanks to ICA's request and ADMIRAL's technical know-how, electric lights and the wonders of radio are now possible for thousands of peoples living in remote undeveloped areas.

Look to **ADMIRAL** for *Rugged, Reliable, and Responsive* equipment for the Government.

Admiral Corporation

Government Electronics Division, Chicago 47, Illinois



MILITARY TELEVISION —THE EYE ON THE TAIL

product of the



Operation "Boresight"—a Military Television System by Du Mont used aboard ship in conjunction with aiming the Talos missile from below decks. This work is being done in conjunction with the Sperry Gyroscope Company, which is producing the Talos missile control radars.

We've helped aim the Talos missile—and our specialized Military Television capabilities have been proved in many other applications as well! In-being Military Television systems developed and manufactured by Du Mont include very low light level (starlight) applications—especially useful on night-roaming armored vehicles and aircraft. High resolution systems providing detailed reconnaissance for drones and space vehicles are also in active development.

Since Du Mont first pioneered in television broadcasting, the company has anticipated the special applications for such techniques in the military—and years of research and intensified study have proved this as fact.

OTHER AREAS OF CAPABILITY IN MILITARY ELECTRONICS

Reconnaissance Systems

Integrated Sensors, Data Links, Ground Processing and Display Systems—for application underwater to space.

Data and Display Systems

Radar and specialized displays, Large Area Projection, Analog Digital Data Handling.

Communications and Radar Systems

Scatter Systems, Data Links, Transmitters, Receivers, Special Radars in K and V bands, Meteorological Radar.

Checkout Systems

Operational, depot, or factory Semi and Automatic systems, Dynamic and static checkout equipment for missiles, drones and aircraft.

Prime and Sub-Contract Manufacturing

Quality manufacturing of electronic equipment in any volume to the exacting performance requirements for military and space projects.

FAIRCHILD
CAMERA AND INSTRUMENT
CORPORATION

DU MONT MILITARY ELECTRONICS
DEPARTMENT OF
DEFENSE PRODUCTS DIVISION

750 BLOOMFIELD AVE. • CLIFTON, NEW JERSEY

TELEPHONE:—PRESBOTT 3-2000

